



CATALOGUE No. H

CATALOGUE No. 32
OF
MILLERS FALLS
COMPANY

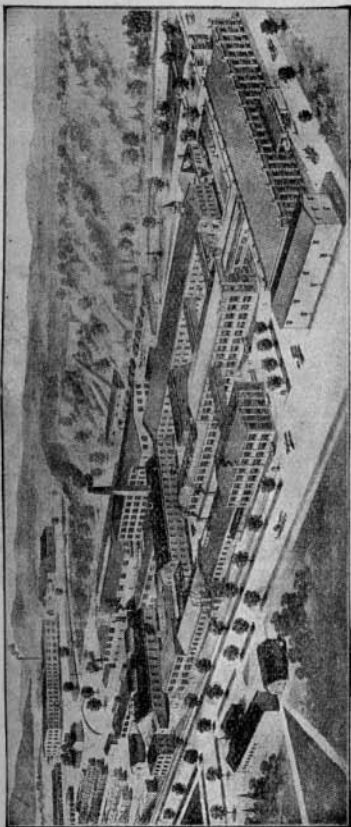


E. F. STOUGHTON, *President*
GEO. E. ROGERS, *Vice-President and Treasurer*
GEO. W. NIMS, *Secretary*

Warehouse and Sales Office:
28 Warren Street, NEW YORK, U.S.A.

Works:
MILLERS FALLS, MASS., U.S.A.

Cable Address: TIGNONA



THE MAIN WORKS OF THE MILLERS FALLS COMPANY
AT MILLERS FALLS, MASS., U. S. A.
IN THE YEAR 1912

(All buildings shown in the above illustration are a part of our works)



1873

Introduction

Some of our correspondents, whom we have not had the pleasure of welcoming at our factory office, may be interested in seeing an illustration of our works, so we are showing on a preceding page a cut of them. Considerable enlargements have recently been made in order to keep pace with the demands upon us. With the increased facilities we are now prepared to turn out goods in largely increased volume.

Several of our lines have been materially extended. We propose to continue our long time reputation of being headquarters on them.

In preparing the catalogue descriptions we have endeavored to be concise and at the same time bring out the salient points of our tools. Much more could be said in their favor. To add that we stand back of every tool of our make seems almost superfluous. We trust that the manner of grouping tools of a kindred nature will be found convenient to our patrons.

As fast as possible we are adopting a uniform label in order to make our goods quickly distinguishable.

Some new tools have been added and several modifications made in those heretofore listed. These new and modified tools consist of

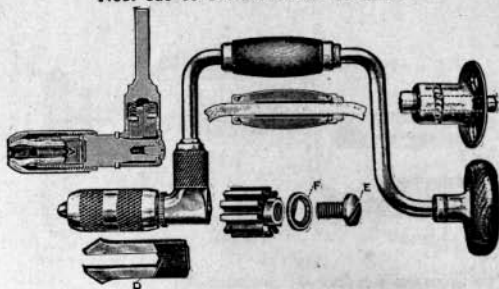
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Electrotypes, illustrating tools of our make, wanted by our customers, will be furnished free of expense.

MILLERS FALLS COMPANY.

MASTER RATCHET BRACES

Nos. 830 to 833 and 830A to 833A



POLISHED AND NICKED steel; **COCOBOLO** wood;
BALL-BEARING head.

NON-SPLITTING ADJUSTABLE BALL-BEARING, always **FREE ACTING**
 sweep handle.

Covered, DUST-PROTECTED ratchet parts.

Patent cup washer (F) and screw (E) to hold chuck to sweep WITHOUT WORKING
LOOSE.

UNBREAKABLE jaw socket made from bar steel.

Chuck shell strengthened at the lip and of convenient shape to fit the hand.

FORGED STEEL JAWS, holding positively and securely and centering with reasonable
 accuracy **ROUND** shanks from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter, **No. 1 Morse TAPER**, and
 all sizes of **BIT STOCK** and **EXPANSION** bit shanks.

Conscientious and thorough workmanship in every detail.

Nos.	830	831	832	833
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	48½ lbs.	43½ lbs.	40½ lbs.	37½ lbs.
Price, per dozen	\$38.00	\$36.00	\$34.00	\$32.00

Packed $\frac{1}{2}$ dozen in a pasteboard box and 3 dozen in a case.

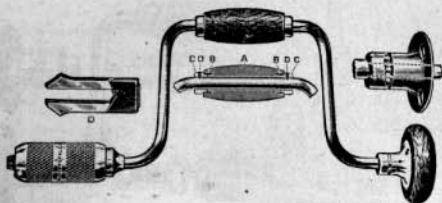
**WITH STEEL CLAD HEADS**

Nos.	830A	831A	832A	833A
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	50½ lbs.	45½ lbs.	42½ lbs.	39½ lbs.
Price, per dozen	\$40.00	\$38.00	\$36.00	\$34.00

Packed $\frac{1}{2}$ dozen in a pasteboard box and 3 dozen in a case.

HOLDALL BRACES

Nos. 710 to 713 and 710A to 713A



POLISHED AND NICKED steel; **COCOBOLO** wood.
BALL-BEARING head.

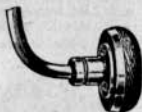
NON-SPLITTING, always **FREE ACTING** sweep handle with **INSERTED STEEL RINGS (B)** and **ADJUSTABLE BEARINGS (C)** clamped with screws (D).

Thoroughly substantial chuck of convenient shape.

FORCED STEEL JAWS, holding positively and securely and centering with reasonable accuracy **ROUND** shanks from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter, No. 1 Morse **TAPER**, and all sizes of **BIT STOCK** and **EXPANSION** bit shanks.

Nos.....	710	711	712	713
Size of sweep.....	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)....	36½ lbs.	32 lbs.	30 lbs.	25 lbs.
Price, per dozen.....	\$26.00	\$24.00	\$22.00	\$20.00

Packed $\frac{1}{2}$ dozen in a pasteboard box and 3 dozen in a case.

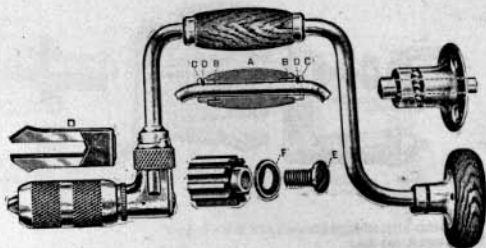
**WITH STEEL CLAD HEADS**

Nos.....	710A	711A	712A	713A
Size of sweep.....	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)....	38½ lbs.	34 lbs.	32 lbs.	27 lbs.
Price, per dozen.....	\$28.00	\$26.00	\$24.00	\$22.00

Packed $\frac{1}{2}$ dozen in a pasteboard box and 3 dozen in a case.

HOLDALL RATCHET BRACES

Nos. 730 to 733 and 730A to 733A



POLISHED AND NICKELED steel; COCOBOLO wood.

BALL-BEARING head.

NON-SPLITTING, always FREE ACTING sweep handle with INSERTED STEEL RINGS (B) and ADJUSTABLE BEARINGS (C) clamped with screws (D).

Covered, DUST-PROTECTED, simply constructed ratchet parts.

Patent cup washer (F) and screw (E) to hold chuck to sweep WITHOUT WORKING LOOSE.

UNBREAKABLE jaw socket made from bar steel.

Chuck shell strengthened at the lip and shaped to fit the hand.

FORGED STEEL JAWS, holding positively and securely and centering with reasonable accuracy ROUND shanks from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter, No. 1 Morse TAPER, and all sizes of BIT STOCK and EXPANSION bit shanks.

Nos.	730	731	732	733
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	51 lbs.	44½ lbs.	42 lbs.	37½ lbs.
Price, per dozen	\$32.00	\$30.00	\$28.00	\$26.00

Packed $\frac{1}{2}$ dozen in a pasteboard box and 3 dozen in a case.



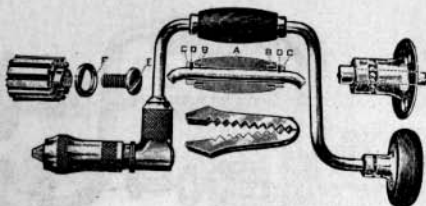
WITH STEEL CLAD HEADS

Nos.	730A	731A	732A	733A
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	53 lbs.	46½ lbs.	44 lbs.	39½ lbs.
Price, per dozen	\$34.00	\$32.00	\$30.00	\$28.00

Packed $\frac{1}{2}$ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 130 to 133 and 130A to 133A

**POLISHED AND NICKED** steel; **COCOBOLO** wood.**BALL-BEARING** head.**NON-SPLITTING**, always **FREE ACTING** sweep handle with **INSERTED STEEL RINGS** (B) and **ADJUSTABLE BEARINGS** (C) clamped with screws (D).Covered, **DUST-PROTECTED** ratchet parts.Patent cup washer (F) and screw (E) to hold chuck to sweep **WITHOUT WORKING LOOSE**.**FORGED STEEL ALLIGATOR JAWS** holding bit stock and many sizes of round and irregular shanks.

Nos.	130	131	132	133
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	45 lbs.	39 lbs.	36½ lbs.	32½ lbs.
Price, per dozen	\$30.00	\$28.00	\$26.00	\$24.00

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

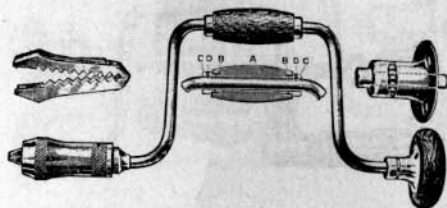
**WITH STEEL CLAD HEADS**

Nos.	130A	131A	132A	133A
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	47 lbs.	41 lbs.	38½ lbs.	34½ lbs.
Price, per dozen	\$32.00	\$30.00	\$28.00	\$26.00

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

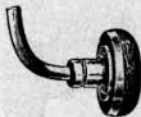
BARBER IMPROVED BRACES

Nos. 10 to 15 and 10A to 15A

**POLISHED AND NICKELED steel; COCOBOLO wood.****BALL-BEARING head (except on Nos. 15 and 15A).****NON-SPLITTING, always FREE ACTING sweep handle with INSERTED STEEL RINGS (B) and ADJUSTABLE BEARINGS (C) clamped with screws (D)****FORGED STEEL ALLIGATOR JAWS holding bit stock and many sizes of round and irregular shanks.**

Nos.....	10	11	12	13	14	15
Size of sweep.....	14 in.	12 in.	10 in.	8 in.	6 in.	4 in.
Weight, per dozen (with pasteboard boxes).....	35½ lbs.	31½ lbs.	29½ lbs.	24½ lbs.	22 lbs.	18½ lbs.
Price, per dozen.....	\$23.00	\$21.00	\$19.00	\$17.00	\$15.00	\$14.00

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

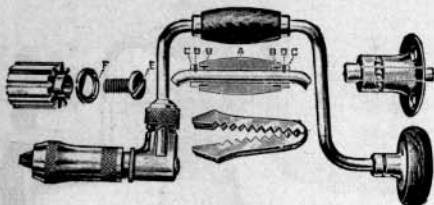
**WITH STEEL CLAD HEADS**

Nos.....	10A	11A	12A	13A	14A	15A
Size of sweep.....	14 in.	12 in.	10 in.	8 in.	6 in.	4 in.
Weight, per dozen (with pasteboard boxes).....	37½ lbs.	33½ lbs.	31½ lbs.	26½ lbs.	24 lbs.	20½ lbs.
Price, per dozen.....	\$25.00	\$23.00	\$21.00	\$19.00	\$17.00	\$16.00

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 30 to 34 and 30A to 34A



POLISHED AND NICKED steel; COCOBOLO wood.
BALL-BEARING head.

NON-SPLITTING, always FREE ACTING sweep handle with INSERTED STEEL RINGS (B) and ADJUSTABLE BEARINGS (C) clamped with screws (D).

COVERED ratchet teeth with exposed ratchet dogs.

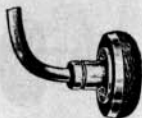
Patent cup washer (F) and screw (E) to hold chuck to sweep WITHOUT WORKING LOOSE.

FORGED STEEL ALLIGATOR JAWS holding bit stock and many sizes of round and irregular shanks.

For nearly two generations the standard in the bit brace world.

Nos.	30	31	32	33	34
Size of sweep	14 in.	12 in.	10 in.	8 in.	6 in.
Weight, per dozen (with pasteboard boxes)	45 lbs.	39 lbs.	36½ lbs.	32½ lbs.	30 lbs.
Price, per dozen	\$29.00	\$27.00	\$25.00	\$23.00	\$21.00

Packed ½ dozen in a pasteboard box and 3 dozen in a case.



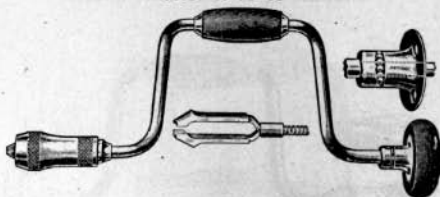
WITH STEEL CLAD HEADS

Nos.	30A	31A	32A	33A	34A
Size of sweep	14 in.	12 in.	10 in.	8 in.	6 in.
Weight, per dozen (with pasteboard boxes)	47 lbs.	41 lbs.	38½ lbs.	34½ lbs.	32 lbs.
Price, per dozen	\$31.00	\$29.00	\$27.00	\$25.00	\$23.00

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER BRACES

Nos. 40 to 44



POLISHED AND NICKED steel; COCOBOLO wood.

BALL-BEARING head.

BRASS RINGS INSERTED in sweep handle.

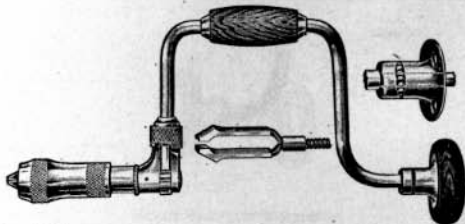
FORGED STEEL jaws.

Nos.	40	41	42	43	44
Size of sweep	14 in.	12 in.	10 in.	8 in.	6 in.
Weight, per dozen (with pasteboard boxes)	37 lbs.	30½ lbs.	28½ lbs.	24½ lbs.	21 lbs.
Price, per dozen	\$20.50	\$18.50	\$16.50	\$14.50	\$12.50

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER RATCHET BRACES

Nos. 61 to 63



Open ratchet.

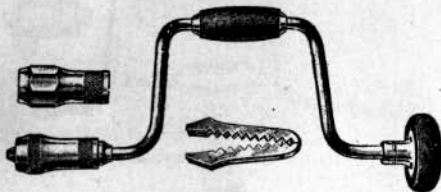
Otherwise the same as Braces Nos. 40 to 44 shown above.

Nos.	61	62	63
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	36 lbs.	33 lbs.	30 lbs.
Price, per dozen	\$24.00	\$22.00	\$20.00

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BRACES

Nos. 220 to 223 and 220A to 223A



POLISHED AND NICKELED steel; stained hardwood.
 Brass rings **INSERTED** in sweep handle.
FORGED STEEL ALLIGATOR JAWS.

Nos.	220	221	222	223
Size of sweep.....	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)....	32 lbs.	27½ lbs.	25½ lbs.	20 lbs.
Price, per dozen.....	\$11.25	\$10.25	\$9.25	\$8.25

Packed ½ dozen in a pasteboard box and 3 dozen in a case.



WITH STEEL CLAD HEADS

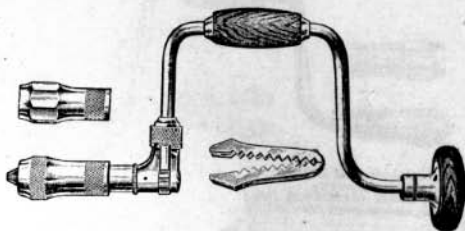
Nos.	220A	221A	222A	223A
Size of sweep.....	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)....	34 lbs.	29½ lbs.	27½ lbs.	22 lbs.
Price, per dozen.....	\$13.25	\$12.25	\$11.25	\$10.25

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.

BARBER IMPROVED RATCHET BRACES

Nos. 320 to 323 and 320A to 323A



Open ratchet.

Otherwise the same as Braces Nos. 220 to 223 and 220A to 223A shown on page next preceding.

Nos.	320	321	322	323
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	40 lbs.	34 lbs.	31½ lbs.	27½ lbs.
Price, per dozen	\$19.50	\$18.50	\$17.50	\$16.50

Packed ¼ dozen in a pasteboard box and 3 dozen in a case.

**WITH STEEL CLAD HEADS**

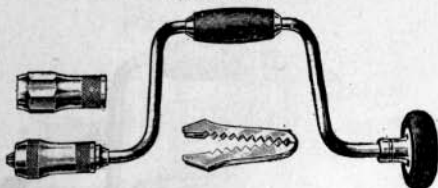
Nos.	320A	321A	322A	323A
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	42 lbs.	36 lbs.	33½ lbs.	29½ lbs.
Price, per dozen	\$21.50	\$20.50	\$19.50	\$18.50

Packed ¼ dozen in a pasteboard box and 3 dozen in a case.

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.

BARBER IMPROVED BRACES

Nos. 20 to 23



Stained hardwood; metal parts polished.

Steel sweeps and jaw sockets.

FORGED STEEL ALLIGATOR JAWS.

A popular, medium-priced Brace and a large seller.

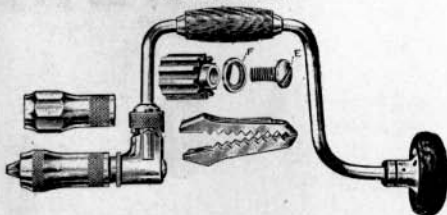
Nos.	20	21	22	23
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	32 lbs.	27½ lbs.	25¼ lbs.	20 lbs.
Price, per dozen	\$9.75	\$9.00	\$8.25	\$7.50

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 120 to 123



Ratchet teeth inclosed.

Otherwise the same as Braces Nos. 20 to 23 as shown above.

Exceptional value for price asked and quickly sold.

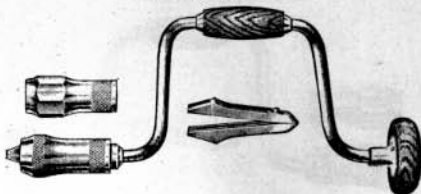
Nos.	120	121	122	123
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	41 lbs.	35 lbs.	33 lbs.	29 lbs.
Price, per dozen	\$18.00	\$17.00	\$16.00	\$15.00

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BRACES

Nos. 541 to 543



Steel sweeps and jaw sockets.

COCOBOLO wood; metal parts **NICKELED**.

Plain jaws.

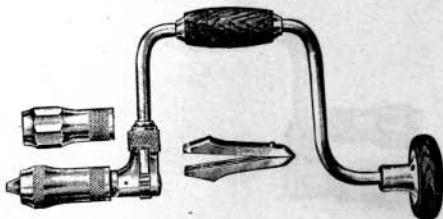
	541	542	543
Nos.	12 in.	10 in.	8 in.
Size of sweep	26 lbs.	24 lbs.	18½ lbs.
Weight, per dozen	\$11.75	\$11.25	\$10.75
Price, per dozen			

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 561 to 563



Open ratchet.

Otherwise the same as Braces Nos. 541 to 543 shown above.

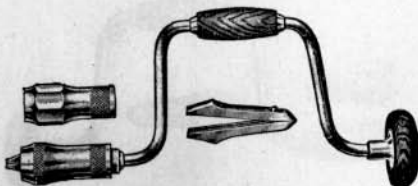
	561	562	563
Nos.	12 in.	10 in.	8 in.
Size of sweep	36 lbs.	33½ lbs.	29½ lbs.
Weight, per dozen	\$16.50	\$16.00	\$15.50
Price, per dozen			

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BRACES

Nos. 401 to 403



Steel sweeps and jaw sockets.

Metal parts **NICKELED**; stained hardwood heads and handles.

Plain jaws.

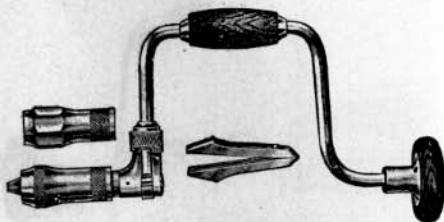
Nos.	401	402	403
Size of sweep.....	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes).....	27 1/2 lbs.	25 1/2 lbs.	20 lbs.
Price, per dozen.....	\$8.80	\$8.20	\$7.60

Furnished with octagonal chuck shells at 50 cents extra per dozen.

Packed 1/2 dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 421 to 423



Open ratchet.

Otherwise the same as Nos. 401 to 403 shown above.

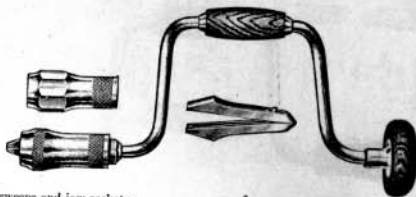
Nos.	421	422	423
Size of sweep.....	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes).....	34 lbs.	31 1/2 lbs.	27 1/2 lbs.
Price, per dozen.....	\$13.60	\$13.00	\$12.40

Furnished with octagonal chuck shells at 50 cents extra per dozen.

Packed 1/2 dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BRACES

Nos. 601 to 603



Steel sweeps and jaw sockets.
Stained hardwood; metal parts polished.
Plain jaws.

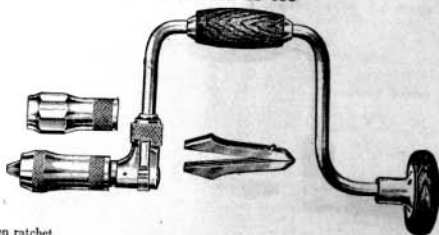
Nos.	601	602	603
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen	27½ lbs.	25½ lbs.	20 lbs.
Price, per dozen	\$7.30	\$6.70	\$6.10

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 631 to 633



Open ratchet.

Otherwise the same as Braces Nos. 601 to 603 shown above.

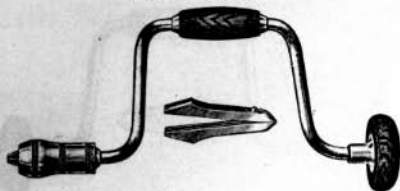
Nos.	631	632	633
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen	34 lbs.	31½ lbs.	27½ lbs.
Price, per dozen	\$11.60	\$11.00	\$10.40

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BRACES

Nos. 141 to 143

Metal parts **POLISHED**; stained hardwood.

Steel sweeps and jaw sockets.

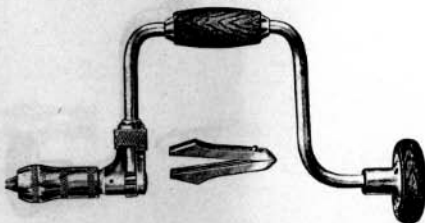
Plain jaws.

Nos.	141	142	143
Size of sweep.....	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes).....	23 lbs.	21 lbs.	15½ lbs.
Price, per dozen.....	\$5.00	\$4.40	\$4.00

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 161 to 163



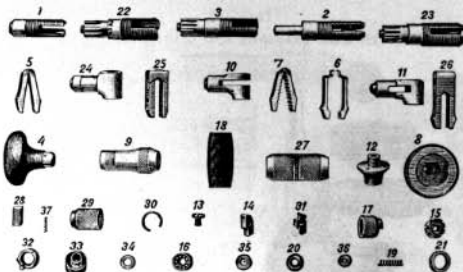
Open ratchet.

Otherwise the same as Braces Nos. 141 to 143 shown above.

Nos.	161	162	163
Size of sweep.....	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes).....	27½ lbs.	25½ lbs.	20 lbs.
Price, per dozen.....	\$9.00	\$8.50	\$8.00

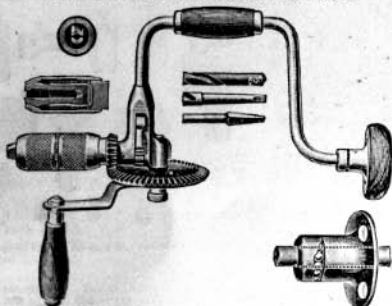
Packed ½ dozen in a pasteboard box and 3 dozen in a case.

LIST OF PARTS OF BIT BRACES AND PRICES



In ordering parts the number of the brace for which they are wanted should be specified as well as the number of the part.

No.	PRICE	No.	PRICE
1 Tail socket for Braces Nos. 710 to 713 and 10 to 15.....	\$0.30	10 Crooked socket for Braces Nos. 421 to 423, 631 to 633 and 161 to 163.....	\$0.25
1 Tail socket for Braces Nos. 220 to 223, 20 to 23 and 541 to 543.....	.25	11 Crooked socket for Braces Nos. 130 to 134 and 30 to 34.....	.40
1 Tail socket for Braces Nos. 401 to 403, 601 to 603 and 141 to 143.....	.20	11 Crooked socket for Braces Nos. 120 to 123.....	.30
2 Tail socket for Braces Nos. 61 to 63.....	.40	12 Quill.....	.25
3 Tail socket for Braces Nos. 130 to 134 and 30 to 34.....	.40	13 Chuck screw.....	.05
3 Tail socket for Braces Nos. 120 to 123.....	.30	14 Ratchet pawl, per set.....	.40
4 Head, maple wood, stained....	.10	15 Ratchet wheel.....	.20
5 Jaws for Braces Nos. 541 to 543, 561 to 563, 401 to 403, 421 to 423, 601 to 603, 631 to 633, 141 to 143 and 161 to 163, per pair....	.20	16 Ball cup.....	.06
6 Jaws for Braces Nos. 40 to 44 and 61 to 63, per pair....	.20	17 Holdall and common ratchet ring.....	.12
7 Jaws for Braces Nos. 130 to 134, 10 to 15, 30 to 34, 220 to 223 and 320 to 323, per pair.....	.25	18 Handle, maple, stained.....	.12
7 Jaws for Braces Nos. 20 to 23 and 120 to 123, per pair.....	.20	18 Handle, cocobolo.....	.20
8 Head, cocobolo wood.....	.20	19 Pawl spring.....	.02
8 Head, stained wood.....	.10	20 Ball plate.....	.01
9 Shell, nicked.....	.40	21 Washer.....	.01
9 Shell, polished.....	.30	22 Holdall socket.....	.45
10 Crooked socket for Braces Nos. 61 to 63, 320 to 323 and 561 to 563.....	.40	23 Master socket.....	.45
		24 Master crooked socket.....	.40
		25 Master jaws, per pair.....	.30
		26 Holdall jaws, per pair.....	.40
		27 Holdall and Master shells.....	.45
		28 Master ratchet pawl, per pair.....	.25
		29 Master ratchet ring.....	.20
		30 Master ratchet ring spring.....	.02
		31 Holdall ratchet pawl, per pair.....	.40
		32 Master ring bushing.....	.10
		33 Master handle ball cup.....	.12
		34 Master handle ball cup washer.....	.01
		35 Master handle ball cup collar.....	.10
		36 Quill washer.....	.01
		37 Master pawl spring.....	.01

DRILL BRACE**No. 182****WITH BALL BEARINGS AND MASTER CHUCK**

Our best grade of **BALL BEARING, RATCHET** brace with 10-inch sweep.
 Drilling attachment removed or affixed in a moment's time.
 Gear ratio about 3 to 1.

Weight, per dozen (with pasteboard boxes), 57 lbs.

Price, per dozen, \$42.00.

Packed 1 in a pasteboard box and 1½ dozen in a case.

UNIVERSAL ANGULAR BIT STOCK**No. 108****WITH MASTER CHUCK**

To be used with a bit brace or a breast drill either as an **EXTENSION** or **ANGULAR BORER**.

ADJUSTABLE ARC varies angle from 180° to 125°.

Length (when at 180°), 12½ inches.

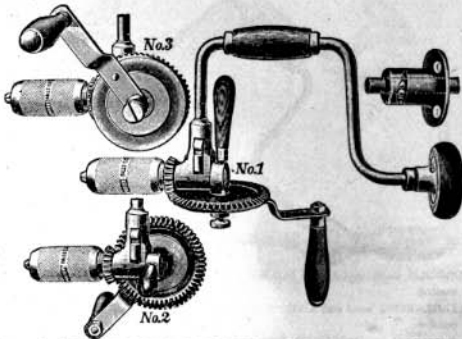
Weight, per dozen (with pasteboard boxes), 26 lbs.

Price, per dozen, \$21.00.

Packed 1 in a pasteboard box.

DRILL BRACE

No. 192



Best grade of **BALL-BEARING, RATCHET** brace with 10-inch sweep and **MASTER CHUCK**.

Improved ratchet; dogs may be thrown out of mesh **SIMULTANEOUSLY** and permit tool to be used as a breast drill.

Drilling attachment affixed or detached quickly and with ease; may be **SWIVELED INTO ANY ONE OF THREE POSITIONS**, Nos. 1, 2, and 3, as shown in illustration.

Weight, per dozen (with pasteboard boxes), 58 lbs.

Price, per dozen, **\$44.00**.

Packed 1 in a pasteboard box and 1½ dozen in a case.

UNIVERSAL ANGULAR BIT STOCK

No. 109

WITH BARBER IMPROVED CHUCK



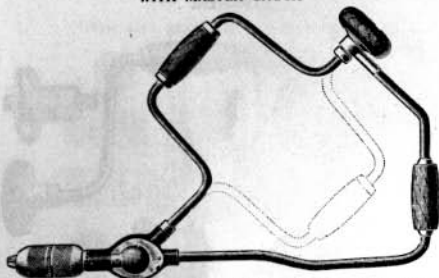
Differs from No. 108 Angular Bit Stock, shown preceding, in chuck only.

Price, per dozen, **\$21.00**.

Packed 1 in a pasteboard box.

CORNER BIT BRACE

WITH MASTER CHUCK



COCOBOLO wood; metal parts **POLISHED AND NICKELED** except japanned hub casting.

BALL-BEARING head and **ADJUSTABLE, FREE ACTING** sweep and steadying handles.

Chuck operated by **INCLOSED GEARS, PROTECTED** from dust and dirt.

Nos.	502	* 503
Size of sweep.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	57 lbs.	55 lbs.
Length	17½ in.	17½ in.
Price, per dozen.....	\$48.00	\$46.00
Packed ½ dozen in a pasteboard box.		

RATCHET CORNER BORER

No. 140

Stained hardwood; metal parts **POLISHED AND NICKELED**.

Steadying handle removable.

Fine ratchet teeth to admit short bite.

Barber chuck with **ALLIGATOR** jaws.

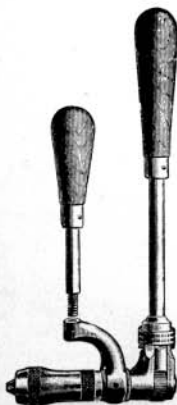
Length vertically (placed as cut), 13½ inches.

Length horizontally, 5 inches.

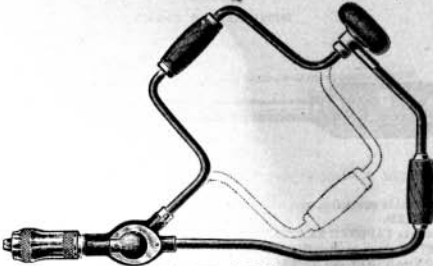
Weight, per dozen (with pasteboard boxes), 28 lbs.

Price, per dozen **\$24.00**.

Packed 1 in a pasteboard box.



CORNER BIT BRACE WITH BARBER IMPROVED CHUCK

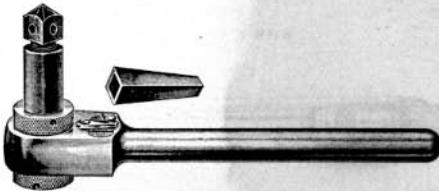


The same as Corner Bit Braces Nos. 502 and 503, shown next preceding, except that chuck is of the **BARBER IMPROVED** pattern, made especially to hold bit stock shanks, also many sizes of round shanks.

Nos.	512	513
Size of sweep.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	53 lbs.	51 lbs.
Price, per dozen	\$48.00	\$46.00

Packed $\frac{1}{2}$ dozen in a pasteboard box.

RATCHET DRILL



Handsomely NICKELED.

Distance from top of feed screw to mouth of socket, **FOUR INCHES** only.

Socket hole for shanks $\frac{1}{2} \times 1\frac{1}{4}$ inches.

Extra socket to hold bit stock shanks provided with each drill without additional charge

Nos.	10	12	14
Length of lever.	10 in.	12 in.	14 in.
Weight, each.	2½ lbs.	3 lbs.	3½ lbs.
Price, each	\$4.00	\$4.50	\$5.00

Packed 1 in a pasteboard box.

EXTENSION BIT HOLDER**No. 1**

WITH MASTER CHUCK



To be used in connection with a bit brace or breast drill.

NICKELED.Bit shanks **TAPERED EXACTLY** to gauge.**MASTER** chuck holding **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, **BIT STOCK, EXPANSION** and No. 1 **MORSE TAPER** shanks.

Length	12 in.	15 in.	18 in.	21 in.	24 in.
Weight, per dozen	18 lbs.	20 lbs.	23 lbs.	25 lbs.	27 lbs.
Price, all lengths, per dozen, \$12.50.					

Packed 1 in a pasteboard box.

EXTENSION BIT HOLDER**No. 2**

WITH BARBER CHUCK



With exception of Barber chuck, designed especially for bit stock shanks, the same as No. 1 Extension Bit Holder, shown next preceding.

Length	12 in.	15 in.	18 in.	21 in.	24 in.
Weight, per dozen	14 lbs.	16 lbs.	19 lbs.	21 lbs.	23 lbs.
Price, all lengths, per dozen, \$12.50.					

Packed 1 in a pasteboard box.

EXTENSION BIT HOLDER

Polished and **NICKEL PLATED** steel.

Chuck, a trifle **LESS THAN $\frac{1}{8}$ INCH IN DIAMETER, FOLLOWS BITS OF THIS SIZE AND LARGER INTO THEIR BORES.**

Clamps bit stock shanks rigidly between inner socket and lip of outer sleeve.

Bits inserted and extracted at will, easily and quickly.

Length.....	12 in.	15 in.	18 in.	21 in.	24 in.
Weight, per dozen.....	6 lbs.	7 $\frac{1}{2}$ lbs.	9 lbs.	10 $\frac{1}{2}$ lbs.	12 lbs.
Price, per dozen.....	\$15.00	\$15.00	\$15.00	\$15.00	\$17.50

Packed 1 in a pasteboard box.

EXTENSION BIT HOLDER**No. 4**

Follows into their bores bits $\frac{1}{8}$ inch in diameter and larger.

Except for being heavier, is of same general pattern as No. 3 Extension Bit Holder shown next preceding.

Length.....	15 in.	18 in.	24 in.
Weight, per dozen.....	10 lbs.	12 $\frac{1}{2}$ lbs.	15 lbs.
Price, per dozen.....	\$17.50	\$17.50	\$20.00

Packed 1 in a pasteboard box.

EXTENSION BIT HOLDER**No. 5****POLISHED AND NICKEL PLATED steel.****FOLLOWS BITS $\frac{1}{2}$ INCH IN DIAMETER and larger INTO THEIR BORES.****Four RELIABLY STRONG, STEEL JAWS, made in one piece, grip firmly over shoulders of bit stock shanks.**

Bit inserted or released instantly when desired

An unsurpassed tool for the purpose intended

Length	12 in.	15 in.	18 in.	21 in.	24 in.
Weight, per dozen	7 lbs.	8 lbs.	9 lbs.	10 lbs.	11 lbs.
Price, per dozen	\$15.00	\$15.00	\$15.00	\$15.00	\$17.50

Packed 1 in a pasteboard box.

TELESCOPE EXTENSION BIT HOLDER**Nos. 6 and 7****POLISHED AND NICKEL PLATED steel.****Outer sleeve, telescoping over, and engaging at ONE AND ONE-HALF INCH INTERVALS upon inner spindle, combining LIGHTNESS WITH STRENGTH.**

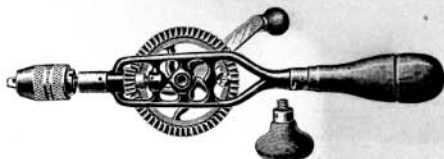
For description of chuck see Extension Bit Holders Nos. 3 and 5, shown previously.

Length, collapsed, $16\frac{1}{2}$ inches.

Length, extended to the extreme, 24 inches.

Weight, per dozen (with pasteboard boxes), $13\frac{1}{2}$ lbs.No. 6, with chuck as on Extension Bit Holder No. 5, per dozen, **\$30.00.**No. 7, with chuck as on Extension Bit Holder No. 3, per dozen, **\$30.00.**

Packed 1 in a pasteboard box.

HAND DRILL**No. 1**

COCOBOLO wood; malleable iron frame; large gear and frame black enameled; other metal parts nicked.

HOLLOW END HANDLE, with screw cap, containing 8 wood boring points ranging in size from $\frac{1}{8}$ to $\frac{1}{4}$ inch in diameter.

Removable side, grip handle.

CUT GEARS with adjustable equalizing bearing.

BALL THRUST BEARING.

Three-jawed chuck holding, and centering accurately, round shank drills from 0 to $\frac{1}{4}$ inch in diameter.

Length, 12 $\frac{1}{2}$ inches.

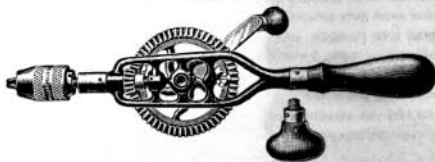
Weight, per dozen (with pasteboard boxes), 20 lbs.

Price, per dozen, including 8 fluted drill points, **\$20.00.**

Price, per dozen, of fluted drill points, **\$0.72.**

Price, per set (8), of fluted drill points, **\$0.48.**

Packed 1 in a pasteboard box.

HAND DRILL**No. 01**

Stained hardwood; black enameled, malleable iron frame; large gear enameled French gray with red stripe; other metal parts nicked.

Solid end handle; removable side, grip handle.

CUT GEARS with adjustable equalizing bearing.

BALL THRUST BEARING.

Three-jawed chuck holding, and centering accurately, round shank drills from 0 to $\frac{1}{4}$ inch in diameter.

Length, 12 $\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 16 lbs.

Price, per dozen, **\$18.00.**

Packed 1 in a pasteboard box.

HAND DRILL**No. 2**

COCOBOLO wood; malleable iron, black enameled frame; large gear painted red; other metal parts nicked.

HOLLOW END HANDLE, with screw cap, shaped so tool may be used as a breast drill, and containing 8 wood boring points, ranging in size from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter.

Removable side, grip handle.

CUT GEARS with adjustable friction roll to equalize bearings.

BALL THRUST BEARING.

Chuck of Star pattern with 3 jaws opening with springs and **CLOSING EVENLY** on, and **CENTERING ACCURATELY**, round shanks from 0 to $\frac{1}{2}$ inch in diameter.

Length, 14 $\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 29 lbs.

Price, per dozen, including 8 fluted drill points, **\$40.00.**

Price, per dozen, of fluted drill points, **\$0.72.**

Price, per set (8), of fluted drill points, **\$0.48.**

Packed 1 in a pasteboard box.

HAND DRILL

No. 2B



Stained hardwood; malleable iron, black enameled frame; large gear enameled French gray with red stripe; other metal parts nickeled.

Solid end handle shaped so tool may be used as a breast drill.

Removable side, grip handle.

CUT GEARS with adjustable friction roll to equalize bearings.

BALL THRUST BEARING.

Chuck of Star pattern with 3 jaws opening with springs and **CLOSING EVENLY** on, and **CENTERING ACCURATELY**, round shanks from 0 to $\frac{1}{4}$ inch in diameter, Length, 14 $\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 28 lbs.

Price, per dozen, **\$34.00.**

Packed 1 in a pasteboard box.

HAND DRILL

No. 02



The shape of end handle excepted, the same as Hand Drill No. 2B shown next preceding. Length, 14 inches.

Weight, per dozen (with pasteboard boxes), 27 lbs.

Price, per dozen, **\$34.00.**

Packed 1 in a pasteboard box.

HAND DRILL

No. 3

Stained hardwood; **SOLID STEEL FRAME.**Large gear enameled black; all other metal parts **NICKELED.**

Hollow end handle quickly detached and with receptacle large enough to hold any twist drills within the capacity of the tool.

Detachable side, grip handle.

CUT GEARS.Three-jawed chuck holding round shanks from 0 to $\frac{1}{2}$ inch in diameter.

Length, 11 inches.

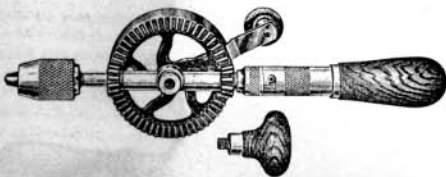
Weight, per dozen (with pasteboard boxes), 18 lbs.

Price, per dozen, **\$16.00.**

Packed 1 in a pasteboard box.

HAND DRILL

No. 3A

Stained hardwood; **SOLID STEEL FRAME.**Large gear enameled French gray with red stripe; all other metal parts **NICKELED.**

Hollow end handle quickly detached and with receptacle large enough to hold any twist drills within the capacity of the tool.

Detachable side, grip handle.

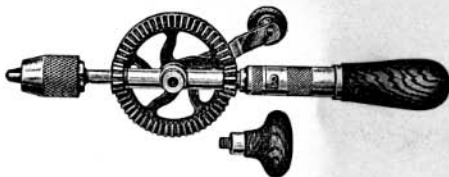
CUT GEARS; large gear with **WIDE RIM** to be grasped between thumb and fingers when delicate work is being done and with idler gear to equalize bearings.Three-jawed chuck holding round shanks from 0 to $\frac{1}{2}$ inch in diameter.

Length, 11 inches.

Weight, per dozen (with pasteboard boxes), 20 lbs.

Price, per dozen, **\$20.00.**

Packed 1 in a pasteboard box.

HAND DRILL**No. 03**

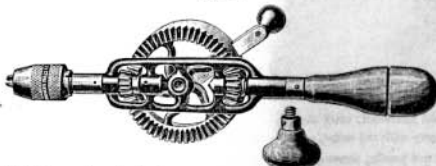
Except that large gear does not have wide rim, the same as Hand Drill No. 3A, shown next preceding.

Length, 11 inches.

Weight, per dozen (with pasteboard boxes), 18 lbs.

Price, per dozen, **\$18.00.**

Packed 1 in a pasteboard box.

HAND DRILL**No. 5**

COCOBOLO wood; malleable iron frame; large gear red and frame black enameled; other metal parts nicked.

HOLLOW END HANDLE, with screw cap, containing 8 wood boring points, ranging in size from $\frac{1}{8}$ to $\frac{1}{4}$ inch in diameter.

Removable side, grip handle.

CUT GEARS; large gear with **WIDE RIM** to be grasped between thumb and fingers when delicate work is being done, and with idler gear to equalize bearings.

BALL THRUST BEARING.

Three-jawed chuck holding, and centering accurately, round shank drills from 0 to $\frac{1}{8}$ inch in diameter.

Length, 12 $\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 22 lbs.

Price, per dozen, including 8 fluted drill points with each drill, **\$24.00.**

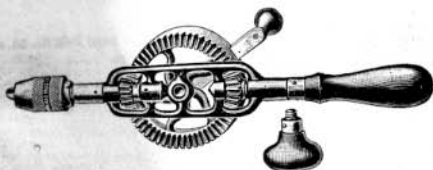
Price, per dozen, of fluted drill points, **\$0.72.**

Price, per set (8), drill points, **\$0.48.**

Packed 1 in a pasteboard box.

HAND DRILL

No. 05



Stained hardwood; black enameled, malleable iron frame; large gear enameled French gray with red stripe; other metal parts nicked.

Solid end handle; removable side, grip handle.

CUT GEARS; large gear with **WIDE RIM** to be grasped between thumb and fingers when delicate work is being done and with idler gear to equalize bearings.

BALL THRUST BEARING.

Three-jawed chuck holding, and centering accurately, round shanks from 0 to $\frac{1}{4}$ inch in diameter.

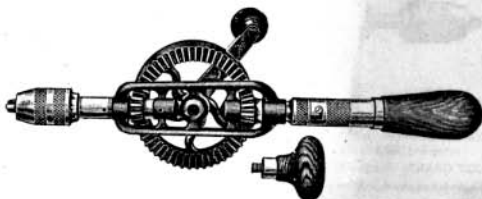
Length, 12 $\frac{1}{2}$ inches

Weight, per dozen (with pasteboard boxes), 18 lbs.

Price, per dozen, **\$21.00.**

Packed 1 in a pasteboard box.

HAND DRILL No. 5F



Stained hardwood handles; black japanned, malleable iron frame, gear enameled French gray with red stripe.

HOLLOW END HANDLE with receptacle large enough to hold twist drills within the capacity of the chuck of the tool.

Removable side, grip handle.

CUT GEARS; large gear with **WIDE RIM** to be grasped between the thumb and fingers when delicate work is being done; idler gear to equalize bearings.

BALL THRUST BEARING.

Three-jawed chuck holding, and centering accurately, round shanks from 0 to $\frac{1}{8}$ inch in diameter.

Length, 13 inches.

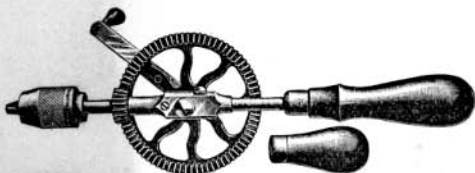
Weight, per dozen (with pasteboard boxes), 20 lbs.

Price, per dozen, \$22.00.

Packed 1 in a pasteboard box

HAND DRILL

No. 7



Stained hardwood handles; **SOLID STEEL FRAME**; metal parts **POLISHED**, excepting black enameled large gear.

CUT GEARS; diameter of large gear 4 inches.

Three-jawed chuck holding round shanks from 0 to $\frac{1}{4}$ inch in diameter. Length, $12\frac{1}{2}$ inches.

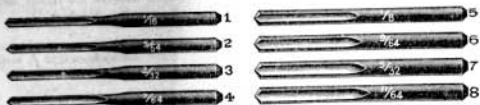
Weight, per dozen (with pasteboard boxes), 23 lbs.

Price, per dozen, including 8 fluted points with each drill, **\$27.50**.

Price, per dozen, of fluted points, **\$0.72**.

Price, per set, of 8 fluted points, **\$0.48**.

Packed 1 in a pasteboard box.

HAND DRILL POINTS

For use in wood and soft metals only. A set furnished with Drills Nos. 1, 2, 5, and 7

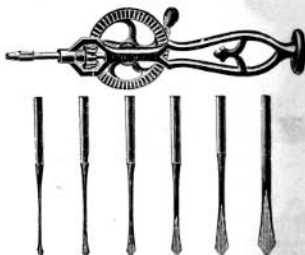
Price, per set, **\$0.48**.

Price, per dozen, **\$0.72**.

Packed 1 set, or 1 dozen, in a wooden box.

HAND DRILL

No. 4



Black enameled, cast iron frame and gears.

Steel spindle.

Chuck holding drill points as shown in illustration, which are supplied in a wooden box.

Length, 8 inches.

Weight, per dozen (with pasteboard boxes), 7½ lbs.

Price, per dozen, with 6 drill points with each drill, \$6.30.

Price, per set, of 6 drill points, \$0.25.

Packed 1 in a pasteboard box.

HAND DRILL

No. 04



Black enameled, cast iron frame and gears.

Steel spindle.

Nickel-chrome chuck holding drills as shown in illustration.

Drills range from 1/16 to 1/2 inch in diameter, are for boring in wood and soft metal and are put up in a wooden box.

Length, 8 inches.

Weight, per dozen (with pasteboard boxes), 9 lbs.

Price, per dozen, with 8 drill points with each drill, \$12.00.

Price, per dozen, of drill points, \$0.72.

Price, per set, of 8 drill points, \$0.48.

Packed 1 in a pasteboard box.

HAND DRILL**No. 4D**

Designed especially for manual training use.

Selected hardwood handle; cast iron frame and large gear enameled French gray.
Steel spindle.

NICKELED two-jawed chuck holding straight shank drills from $\frac{3}{8}$ to $\frac{1}{2}$ inch in diameter.
Length, 8 inches.

Weight, per dozen (with pasteboard boxes), 8 lbs.

Price, per dozen, **\$10.50.**

Packed 1 in a pasteboard box.

D HANDLE FOR BREAST DRILLS

Fits Breast Drills Nos. 10, 10A, 11, 12, 12A, 012, 13, 13A, 15, 15A, 18, 19, 25, 29, 130, 190, and 290.

Price, per dozen, \$4.00.

Can be substituted for Breast Plates at regular prices.

SPECIAL ATTENTION is hereby called to the new
SERIES of **BREAST DRILLS** illustrated on
the following pages, to wit:

Breast Drills designated as numbers 84, 85, 86, 87, 94, 95, 96, 97. Each of these numbers has its distinctive operations, though all are constructed on the same general plan. There is no drill on the market approaching them in point of efficiency or variety of performances. While there are drills performing some of the functions, the methods employed in all the drills we have seen have been subjected to so much friction in operation that the power has been sacrificed. We have, however, so constructed our Drills as to eliminate this objection by running each driving gear on its own independent bearing, thus adding about 30% to the power, and we would invite a careful comparison by way of actual test in demonstrating this fact.

We have tested these Drills in special machines made for the purpose, putting them through more operations than they would be subject to in a lifetime, and in every instance they have stood up perfectly under the test. The devices employed for acquiring the ratchet and onward movement and independent bearings are entirely original and secured by Letters Patent.

BREAST DRILL

No. 87

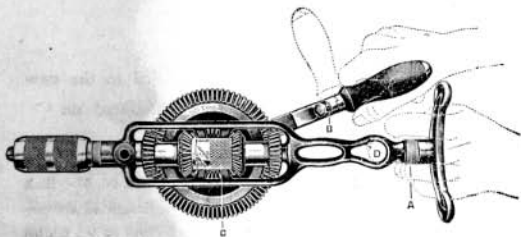


FIG. X

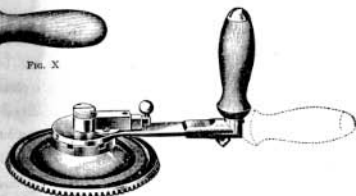


FIG. V



FIG. Y

Capable of performing a number of different movements, all of which are desirable and ingenious.

Selected hardwood handles, stained; malleable iron, black frame; large gear and breast plate enameled French gray with red trimmings; other metal parts nicked.

BREAST DRILL No. 87—(Continued)

Breast plate **ADJUSTABLE TO DIFFERENT POSITIONS** at right angles to each other by loosening knurled nut A; **MADE TO FIT THE HAND** and, when grasped, as in main illustration on preceding page, with the middle finger through hole D in the frame, the **TOOL CAN EASILY BE HELD AND STEADIED IN AWKWARD AND OUT-OF-THE-WAY PLACES WHERE THE BREAST PLATE MUST BE HELD IN THE HAND.** **AUXILIARY** breast plate, as in Figure Y, to be clamped over the regular breast plate, **TO ADD TO EASE AND COMFORT** or for use in **DOING HEAVY WORK.**

Ratchet adjustment C with **POSITIVE MECHANISM** allowing **ACTION WITHOUT RATCHET**, as an ordinary breast drill,
RIGHT HAND RATCHET ACTION,
LEFT HAND RATCHET ACTION,
CONTINUOUS RIGHT HAND RATCHET ACTION, i. e., chuck turns **CONTINUOUSLY ONWARD TO THE RIGHT WHETHER CRANK IS MOVED FORWARD OR BACKWARD.**
CONTINUOUS LEFT HAND RATCHET ACTION, i. e., chuck turns **CONTINUOUSLY ONWARD TO THE LEFT WHETHER CRANK IS MOVED FORWARD OR BACKWARD**

Crank handle **ADJUSTABLE TO TWO POSITIONS:** one, **AT RIGHT ANGLES TO CRANK,** the other, **IN LINE WITH THE CRANK,** as shown in main illustration, which is of advantage in cramped quarters and increases the power of the crank. Change of position is accomplished by inserting pin shown on the end of handle in Figure X into hole in screw B, as shown in the main illustration, and using the pin as a wrench to loosen the screw. Handle in Figure X is primarily intended to be screwed into the main frame at a point between the chuck and gears and to be used in steadying the tool.

TWO SPEEDS, 2 $\frac{1}{2}$ to 1 and even; **INSTANTLY CHANGEABLE** by means of the knob shown in Figure V, **WITHOUT REMOVING THE DRILL FROM THE WORK.**

By the same knob the gears can be **LOCKED FOR TIGHTENING OR LOOSENING THE CHUCK.**

DOUBLE GEARED; CUT TEETH; small gears of **STEEL.**
BALL THRUST BEARING with **TAKE UP** in case of wear.

Chuck of the **MASTER** pattern, holding, and centering with reasonable accuracy, **ROUND** shanks from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter, No. 1 Morse **TAPER** and all sizes of **BIT STOCK** shanks.

Weight, per dozen (with pasteboard boxes), 96 lbs.

Weight of auxiliary breast plate (included in weight given next above), $\frac{1}{2}$ lb.

Length, 17 inches.

Price, per dozen, **\$75.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 84

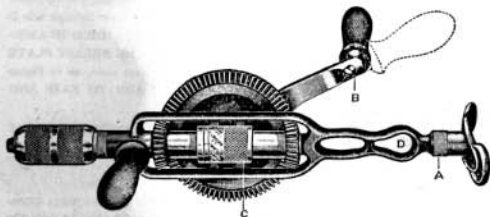


FIG. X

The same as Breast Drill No. 87, shown next preceding, except that it does not have the changeable speed.

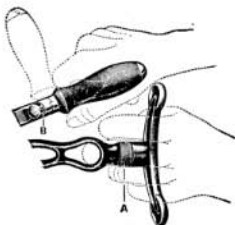


FIG. T



FIG. Y

Weight, per dozen (with pasteboard boxes), 93 lbs.

Weight of auxiliary breast plate (included in weight given next above), $\frac{1}{2}$ lb.

Length, 17 inches.

Price, per dozen, \$66.00.

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 86

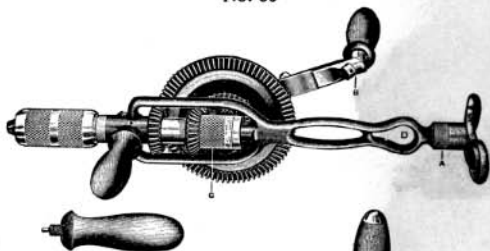


FIG. X

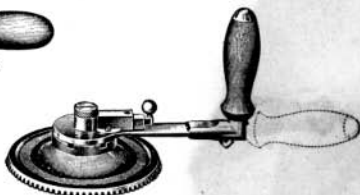


FIG. V

Differs from Breast Drill No. 87, shown preceding, only in that the ratchet mechanism does not have the continuous onward movements.

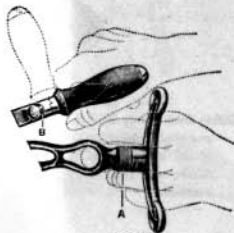


FIG. T

Weight, per dozen (with pasteboard boxes), 91 lbs.

Weight of auxiliary breast plate (included in weight given next above), $\frac{1}{4}$ lb.

Length, 17 inches.

Price, per dozen, \$60.00.

Packed 1 in a pasteboard box and 1 dozen in a case



FIG. Y

BREAST DRILL

No. 97

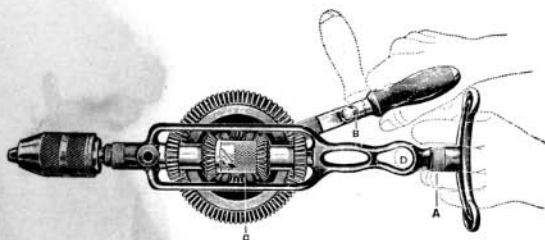


FIG. X

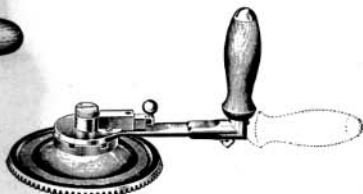


FIG. V

Differs from Breast Drill No. 87, shown preceding, only in that the chuck is of the Star pattern holding round shanks only from 0 to $\frac{1}{4}$ inch in diameter.



FIG. Y

Weight, per dozen (with pasteboard boxes), 99 lbs.

Weight of auxiliary breast plate (included in weight given next above), $\frac{1}{2}$ lb.

Length, 17 $\frac{1}{4}$ inches.

Price, per dozen, \$80.00.

Packed 1 in a pasteboard box and 1 dozen in a case.

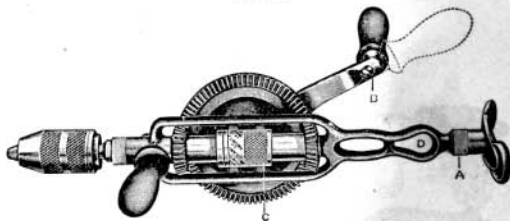
BREAST DRILL**No. 94**

FIG. X

The same as Breast Drill No. 87, shown preceding, except that it does not have a changeable speed and, instead of the Master chuck, has one of the Star pattern made especially to hold round shanks only from 0 to $\frac{1}{2}$ inch in diameter.



FIG. T



FIG. Y

Weight, per dozen (with pasteboard boxes), 96 lbs.

Weight of auxiliary breast plate (included in weight given next above), $\frac{1}{2}$ lb.

Length, 17 $\frac{1}{2}$ inches.

Price, per dozen, \$70.00.

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 96

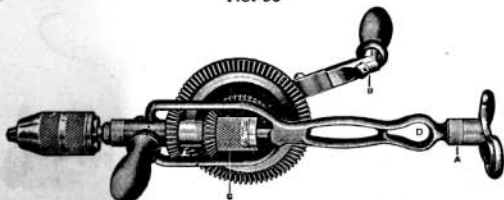


FIG. X

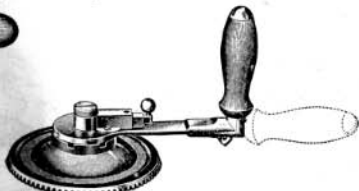


FIG. V

This tool is provided with a Star chuck made especially to hold round shanks from 0 to $\frac{1}{4}$ inch in diameter and its ratchet mechanism does not have the continuous onward movements. In other respects it is the same as Breast Drill No. 87, shown preceding.

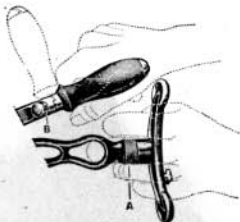


FIG. T

Weight, per dozen (with pasteboard boxes), 95 lbs.

Weight of auxiliary breast plate (included in weight given next above), $\frac{1}{4}$ lb.

Length, 17 $\frac{1}{2}$ inches.

Price, per dozen, \$64.00.

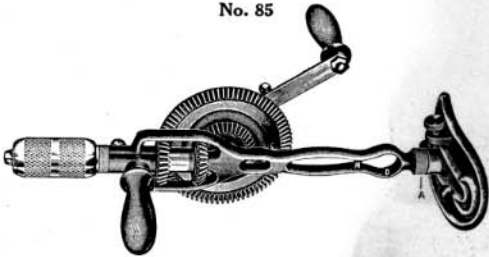
Packed 1 in a pasteboard box and 1 dozen in a case.



FIG. Y

BREAST DRILL

No. 85



Selected hardwood handles, stained; malleable iron, black frame; large gear and breast plate enameled French gray with red trimmings; other metal parts nickeled.

Breast plate ADJUSTABLE TO DIFFERENT POSITIONS at right angles to each other by loosening knurled nut A; **MADE TO FIT THE HAND** and, when grasped, as in illustration, with the middle finger through hole D in the frame, the **TOOL CAN EASILY BE HELD AND STEADIED IN AWKWARD AND OUT-OF-THE-WAY PLACES WHERE THE BREAST PLATE MUST BE HELD IN THE HAND.** **AUXILIARY** breast plate, attached in main illustration above, to be clamped over the regular breast plate, **TO ADD TO EASE AND COMFORT** or for use in **DOING HEAVY WORK.**

TWO SPEEDS, 2½ to 1 and even; INSTANTLY CHANGEABLE by means of the knob shown in

Figure V, **WITHOUT REMOVING THE DRILL FROM THE WORK.**

By the same knob the gears can be **LOCKED FOR TIGHTENING OR LOOSENING THE CHUCK.**

GEARS WITH CUT TEETH; small gears of STEEL.

BALL THRUST BEARING with **TAKE UP** in case of wear.

Chuck of the **MASTER** pattern, holding, and centering with reasonable accuracy, **ROUND** shanks from ¼ to ½ inch in diameter, No. 1 Morse **TAPER** and all sizes of **BIT STOCK** shanks.

Weight, per dozen (with pasteboard boxes), 83 lbs.

Weight of auxiliary breast plate (included in weight given next above), ½ lb.

Length, 17 inches.

Price, per dozen, \$50.00.

Packed 1 in a pasteboard box and 1 dozen in a case.

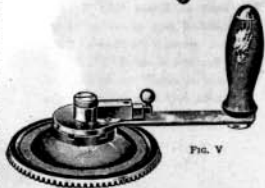
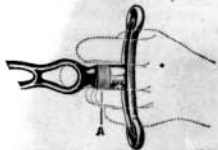
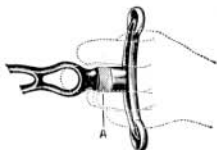


FIG. V

BREAST DRILL

No. 95



The same as Breast Drill No. 85, described next preceding, except that, instead of the Master Chuck, it has one of the **STAR** pattern made especially to hold round shanks only from 0 to $\frac{1}{2}$ inch in diameter.

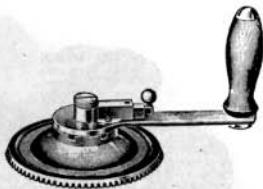


FIG. V

Weight, per dozen (with pasteboard boxes), 84 lbs.

Weight of auxiliary breast plate (included in weight given next above), $\frac{1}{2}$ lb.

Length, $17\frac{1}{2}$ inches.

Price, per dozen, \$54.00.

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 10



COCOBOLO handles; **SOLID STEEL FRAME**; large gear painted black with gilt stripe; under side of breast plate painted red; other metal parts **POLISHED AND NICKELED**.

Breast plate **ADJUSTABLE** to different positions or removable.

EXTENSIBLE CRANK with radius from $5\frac{1}{2}$ to 7 inches, **ADDING POWER** to the tool.

Patent **LEVEL** attachment.

CUT GEARS with **CHANGEABLE SPEED** from even to 3 to 1.

BALL THRUST BEARING.

MASTER CHUCK holding **ROUND** shanks from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter, **BIT STOCK** and No. 1 **TAPER** shanks.

Length, 17 inches.

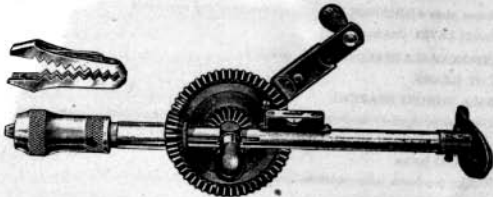
Weight, per dozen (with pasteboard boxes), 78 lbs.

Price, per dozen, **\$47.00**.

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 10A



The same as Breast Drill No. 10, shown next preceding, excepting chuck which is of the **BARBER IMPROVED** pattern with **ALLIGATOR JAWS**.

Length, 17 inches.

Weight, per dozen (with pasteboard boxes), 74 lbs.

Price, per dozen, **\$47.00**.

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 11



COCOBOLO handles; **SOLID STEEL MAIN STOCK**; large gear enameled black with gilt stripe; under side of breast plate painted red; other metal parts **POLISHED AND NICKED**.

Breast plate **ADJUSTABLE** to different positions and removable.

Patent **LEVEL** attachment.

CHANGEABLE SPEED from even to 3 to 1.

CUT GEARS.

BALL THRUST BEARING.

Three-jawed chuck of the Star pattern, holding, and centering accurately, round shanks only from 0 to $\frac{1}{4}$ inch in diameter

Length, 15 inches.

Weight, per dozen (with pasteboard boxes), 65 lbs.

Price, per dozen, **\$47.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL No. 12 Improved



COCOBOLO handles; large gear and breast plate painted green and malleable iron main stock enameled black; chuck and crank **NICKELED**.

Breast plate **ADJUSTABLE** to different positions and removable.

Patent **LEVEL ATTACHMENT**.

CUT GEARS; large gear with **IDLER ROLL** to equalize bearings.

BALL THRUST BEARING.

EXTENSIBLE CRANK with radius from 4 to 6 inches, **ADDING TO THE POWER** of the tool.

CHANGEABLE SPEED from even to 3 to 1.

MASTER CHUCK holding **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, all sizes of **BIT STOCK** and No. 1 **TAPER** shanks.

Length, 17 $\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 79 lbs.

Price, per dozen, \$40.00.

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 12A



The same as Breast Drill No. 12, shown next preceding, excepting that chuck is of the **BARBER IMPROVED** pattern with **ALLIGATOR JAWS**.

Length, 17½ inches.

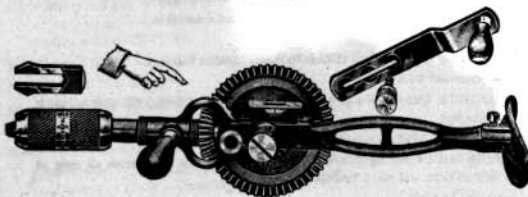
Weight, per dozen (with pasteboard boxes), 75 lbs.

Price, per dozen, \$40.00.

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 012



The same as Breast Drill No. 12 shown preceding, excepting latch, as indicated with hand in illustration, for locking the gears when inserting a bit into, or removing it from, the chuck.

Length, 17½ inches.

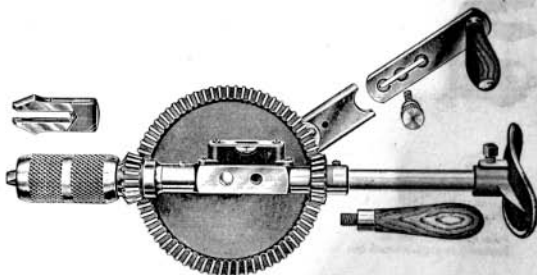
Weight, per dozen (with pasteboard boxes), 80 lbs.

Price, per dozen, \$43.00.

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 13



COCOBOLO handles; **SOLID STEEL MAIN STOCK**; large gear and under side of breast plate painted red; other metal parts **POLISHED AND NICKED**.

Breast plate **ADJUSTABLE** to different positions and removable.

EXTENSIBLE CRANK with radius of 5½ to 7 inches, **ADDING TO POWER** of the tool.

CUT GEARS; large gear 6 inches in diameter, giving speed of 4½ to 1; idler gear to **EQUALIZE BEARINGS**.

Patent **LEVEL ATTACHMENT**.

BALL THRUST BEARING.

MASTER CHUCK holding, and centering with reasonable accuracy, **ROUND** shanks from ¼ to ½ inch in diameter, all sizes of **BIT STOCK** and No. 1 **TAPER** shanks. Length, 15 inches.

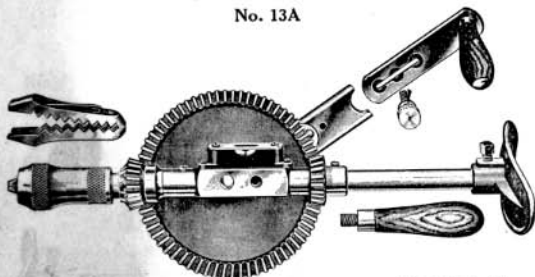
Weight, per dozen (with pasteboard boxes), 70 lbs.

Price, per dozen, **\$55.00**.

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 13A



The same as Breast Drill No. 13, shown next preceding, except that chuck is of the **BARBER IMPROVED** pattern with **ALLIGATOR JAWS**.

Length, 15 inches.

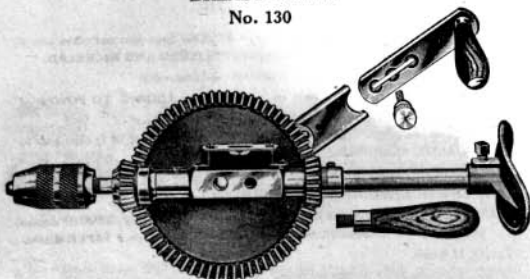
Weight, per dozen (with pasteboard boxes), 66 lbs.

Price, per dozen, **\$55.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 130



The same as Breast Drill No. 13, shown preceding, except that chuck is of the **STAR** pattern, with three jaws, made especially for holding round shanks only from 0 to $\frac{1}{4}$ inch in diameter.

Length, 15 inches.

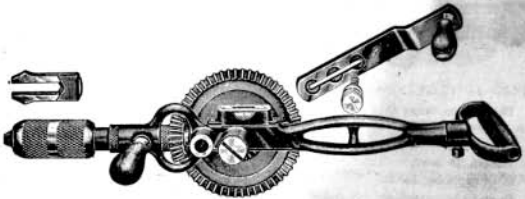
Weight, per dozen (with pasteboard boxes), 72 lbs.

Price, per dozen, **\$63.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 15



Wood handles **COCOBOLO**; large gear painted green and D shaped handle and malleable iron main stock enameled black; chuck and crank **NICKELED**.

D handle **ADJUSTABLE** to different positions and removable.

Patent **LEVEL ATTACHMENT**.

CUT GEARS; large gear with idler roll to equalize bearings.

BALL THRUST BEARING.

EXTENSIBLE CRANK with radius from 4 to 6 inches, **ADDING POWER** to the tool.

CHANGEABLE SPEED from even to 3 to 1.

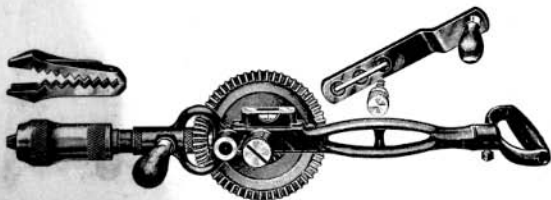
MASTER CHUCK holding **ROUND** shanks from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter, **BIT STOCK** and No. 1 **TAPER** shanks.

Length, 19 inches.

Weight, per dozen (with pasteboard boxes), 79 lbs.

Price, per dozen, \$40.00.

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL**No. 15A**

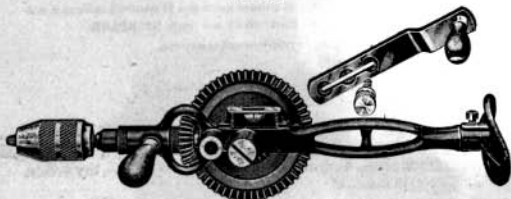
The same as Breast Drill No. 15, shown next preceding, excepting chuck, which is of the **BARBER IMPROVED** pattern with **ALLIGATOR JAWS**.

Length, 19 inches.

Weight, per dozen (with pasteboard boxes), 75 lbs.

Price, per dozen, \$40.00.

Packed 1 in a pasteboard box and 1 dozen in a case

BREAST DRILL**No. 18**

Same as Breast Drill No. 15, shown preceding, except that chuck is of the **STAR** pattern with three jaws, made especially for holding round shanks from 0 to $\frac{1}{4}$ inch in diameter, and that breast plate is provided instead of D handle.

Length, 17 $\frac{1}{2}$ inches

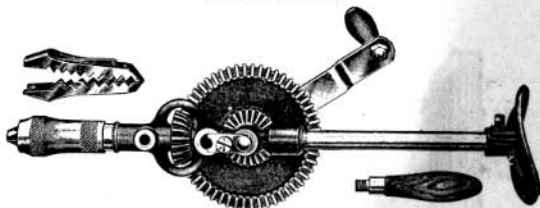
Weight, per dozen (with pasteboard boxes), 81 lbs

Price, per dozen, \$47.00.

Packed 1 in a pasteboard box and 1 dozen in a case

BREAST DRILLS

Nos. 19 and 190



Stained hardwood handles; black enameled, cast iron frame; **ROLLED STEEL MAIN STOCK**; large gear painted red.

Breast plate **ADJUSTABLE** to different positions.

ADJUSTABLE CRANK with radius of 4 to 7 inches, **ADDING POWER** to the tool.

CUT GEARS.

BALL THRUST BEARING.

CHANGEABLE SPEED from even to 3 to 1.

BARBER IMPROVED chuck with **ALLIGATOR JAWS** holding bit stock and many sizes of round shanks.

Length, 18 inches.

Weight, per dozen (with pasteboard boxes), 74 lbs.

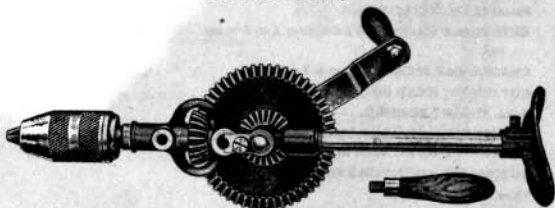
No. 19 (polished), per dozen, **\$27.00.**

No. 190 (nickel), per dozen, **\$32.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILLS

Nos. 29 and 290



The same as Breast Drills Nos. 19 and 190, shown next preceding, except that chuck is of the **STAR** pattern with three jaws holding round shanks from 0 to $\frac{1}{4}$ inch in diameter.

Length, 18 $\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 78 lbs.

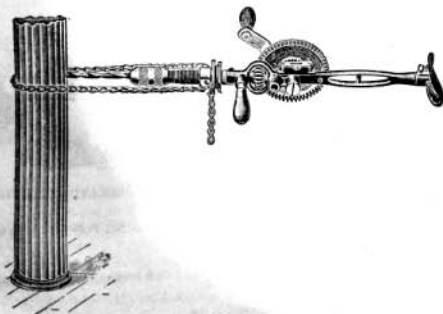
No. 29 (polished), per dozen, **\$35.00.**

No. 290 (nickel), per dozen, **\$40.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 25



COCOBOLO handles; black enameled, malleable iron frame; gear and breast plate painted green; other metal parts **NICKELED**.

Breast plate **ADJUSTABLE** to different positions and removable.

Patent LEVEL ATTACHMENT.

EXTENSIBLE CRANK with radius from 4 to 6 inches, **ADDING POWER** to the tool.

CHANGEABLE SPEED from even to 3 to 1.

CUT GEARS; IDLER ROLL to equalize bearings.

BALL THRUST BEARING.

MASTER CHUCK, holding **ROUND** shanks from $\frac{1}{2}$ to $\frac{3}{4}$ inch in diameter, **BIT STOCK** and No. 1 Morse **TAPER** shanks.

AUTOMATIC, ADJUSTABLE FEED.

Three feet of stout chain.

May be used as an ordinary breast drill without the chain.

Length, 20 inches.

Weight, per dozen (with pasteboard boxes), 98 lbs.

Price, per dozen, \$60.00.

Packed 1 in a pasteboard box and 1 dozen in a case.

COMBINATION BRACE AND CHAIN DRILL**No. 50**

Comprises two tools: Ratchet Bit Brace and Chain Drill.

- (1) Ratchet Bit Brace with ten inch sweep:

POLISHED AND NICKED steel and **COCOBOLO** wood.

BALL-BEARING head and **ADJUSTABLE, FREE ACTING** sweep handle.

Covered ratchet teeth.

MASTER chuck, holding **ROUND, BIT STOCK**, and No. 1 Morse **TAPER** shanks.

- (2) Chain Drill:

Durable **NICKED** steel and cast iron.

BALL-BEARING.

Instantly **INTERCHANGEABLE** with brace chuck.

ADJUSTABLE AUTOMATIC FEED.

Plain socket $\frac{1}{2}$ inch in diameter. Four feet of heavy chain.

Length, 17 inches.

Weight, per dozen (with pasteboard boxes), 82 lbs.

Price, per dozen, **\$55.00.**

Packed 1 in a pasteboard box.

**DRILL SOCKET A**

To be used with No. 50 Brace and Chain Drill, shown above, to hold bit stock shanks.
Price, each, **\$0.30.**

CHAIN DRILL**No. 717**

Yoke and nuts japanned; socket and bit shank
nickled.

AUTOMATIC, SELF-REGULATING FEED or
may be fed by hand.

FOUR FEET of stout chain.

Length of main spindle, $8\frac{1}{2}$ inches.

Weight, $3\frac{1}{2}$ lbs.

Price, \$1.60.

Packed 1 in a pasteboard box.

**CHAIN DRILL****No. 718**

Same as Chain Drill No. 717, shown next preceding,
except that **MASTER CHUCK** is added
for holding **ROUND** shanks from $\frac{1}{4}$ to $\frac{1}{2}$
inch in diameter, **BIT STOCK**, and No. 1 Morse
TAPER shanks.

Length, with chuck inserted, $11\frac{1}{2}$ inches.

Weight, 4½ lbs.

Price, \$3.00.

Packed 1 in a pasteboard box.



CHAIN DRILL No. 719

Same as Chain Drill No. 717, shown preceding, excepting that **STAR** chuck is provided for holding round shanks from 0 to $\frac{1}{4}$ inch in diameter.

Length, with chuck inserted, $11\frac{1}{4}$ inches

Weight, $4\frac{1}{2}$ lbs

Price, \$4.25.

Packed 1 in a pasteboard box.



CHAIN DRILL No. 720

Same as Chain Drill No. 717, shown preceding, except that **BARBER IMPROVED** chuck is provided, made especially for holding bit stock shanks and many sizes of round shanks.

Length, with chuck inserted, $11\frac{1}{2}$ inches.

Weight, $4\frac{1}{2}$ lbs.

Price, \$3.00.

Packed 1 in a pasteboard box.



BENCH DRILL PRESS**No. 22**

A simply constructed standard and fixtures to hold any of our hand drills excepting Nos. 4, 04, 4D, and 7

Steel and iron japanned.

SENSITIVE, compound lever feed.

ADJUSTABLE CLAMP to hold drill

Height between chuck and table, when former is raised to its highest point, varying from $6\frac{1}{2}$ to $7\frac{1}{2}$ inches according to drill used.

Height of standard above bench, $15\frac{1}{2}$ inches

Weight (with pasteboard box), 8 lbs.

Price of frame only, \$2.25.

Note:—For prices of drills see Hand Drills.

Packed 1 in a pasteboard box.

**BENCH DRILL PRESS****No. 23**

Drilling attachment permanently affixed.

STAR chuck holding, and centering accurately, round shanks from 0 to $\frac{3}{4}$ inch in diameter.

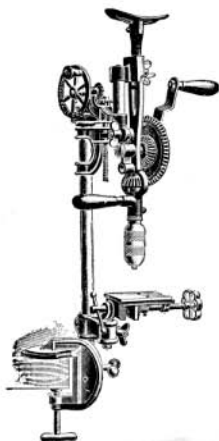
Distance from chuck to table, when former is raised to highest point, $6\frac{1}{2}$ inches.

Otherwise the same as Bench Drill Press No. 22, shown next preceding.

Weight (with pasteboard box), 9 lbs.

Price, \$4.50.

Packed 1 in a pasteboard box.



UNIVERSAL HAND DRILL PRESS

No. 20

A standard and fixtures to hold our **Breast Drills** Nos. 10, 10A, 11, 12, 12A, 012, and 18.

SENSITIVE hand feed.

Drill may be swiveled into many positions and clamped at varying heights, either above or below the bench.

Vise swung on pin **OFF CENTER**, permitting its use in many positions; may be used horizontally, on an angle, or reversed and table turned uppermost.

Height of standard, 24 inches.

Weight, boxed, 28 lbs.; net, 19 lbs.

Price, **WITHOUT BREAST DRILL**, each, \$5.00.

Packed 1 in a case.

UNIVERSAL HAND DRILL PRESS

No. 21

Drilling attachment permanently affixed.

CHANGEABLE SPEED from even to 3 to 1.

EXTENSIBLE CRANK with radius from 5 to 6½ inches.

STAR CHUCK for round shanks from 0 to ½ inch in diameter.

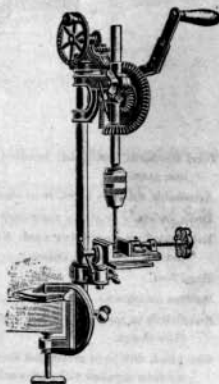
Otherwise the same as Hand Drill Press No. 20, shown next preceding.

Weight, boxed, 30 lbs.; net, 21 lbs.

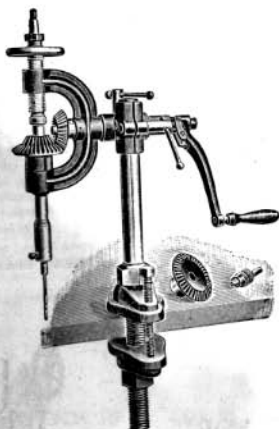
Price, complete, \$9.00.

Packed 1 in a case.

For parts and their prices see page 64.



ANGULAR AND RATCHET DRILLING MACHINE



Steel standards, shafts, and spindles; iron frame, crank and bench clump; malleable iron gears.

Attachable either to bench or to object to be drilled.

Drills vertically or at any angle desired, above or below bench.

Extensible from standard outward: No. 1 machine, 4½ to 5½ inches; No. 2, 6 to 8 inches; and No. 3, 7 to 10½ inches.

Hand feed.

Ratchet attachment.

Socket hole in spindle for ½-inch round shanks but bored to order for ¼-inch without extra charge.

One ¼-inch drill to fit socket and Star chuck to hold round shanks from 0 to ¼ inch in diameter supplied with each machine, without extra charge; omitted when machine is made to order with taper socket.

ANGULAR AND RATCHET DRILLING MACHINE—(Continued)

No. 1, Speeded; ball bearing. Drills hole up to $\frac{1}{4}$ inch.

No. 2, With two sets of gears making either speeded or geared back; hardened anti-friction bearings. Drills hole up to 1 inch.

No. 3, Geared back; hardened anti-friction bearings. Drills hole up to $1\frac{1}{2}$ inches.

Nos.	1	2	3
Height of standard.	25 $\frac{1}{2}$ in.	25 $\frac{1}{2}$ in.	28 $\frac{1}{2}$ in.
Weight, boxed.	50 lbs.	86 lbs.	135 lbs.
Weight, net.	34 lbs.	68 lbs.	108 lbs.
Price	\$16.00	\$20.00	\$30.00

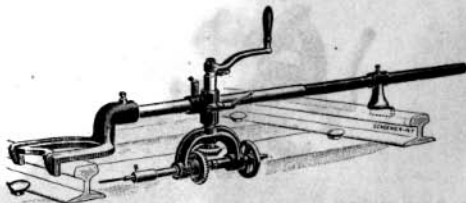
To order with hole for taper socket, extra, net, \$1.50.

Note:—When ordering state size of taper wanted.

For prices of parts see page 65.

TRACK DRILL

No. 5



Steel standards, shafts, and spindles; iron frame, crank and track rests; malleable iron gears.

Socket for round shanks $\frac{1}{2} \times 2\frac{1}{2}$ inches but bored $\frac{1}{4}$ inch without extra charge.

One $\frac{1}{4}$ -inch drill to fit regular socket provided with each machine, also a Star chuck to hold round shanks from 0 to $\frac{1}{4}$ inch in diameter; omitted when socket is made for taper shanks.

Two sets of gears making machine speeded or geared back.

Drills up to 1-inch hole.

Weight, boxed, 95 lbs.; net, 68 lbs. Price, \$24.00.

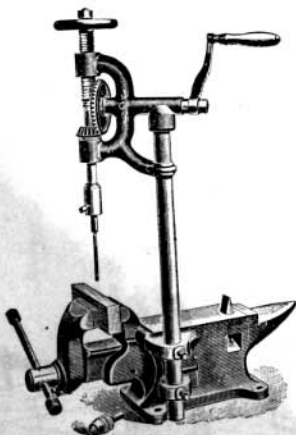
Made to order with taper socket, extra, net, \$1.50.

Note:—When ordering state size of taper wanted.

Packed 1 in a wooden box.

For price of parts see page 65.

ANVIL, VISE, AND DRILL



(1) Drilling Attachment

Steel standards and spindle, hand feed; socket hole $\frac{1}{2}$ inch in diameter; provided with one $\frac{1}{4}$ -inch drill to fit socket hole and **EXTRA CHUCK** to hold round shanks from 0 to $\frac{1}{2}$ inch in diameter; attachment may be swung away from vise and work done below the bench; height of standard, 24 inches.

(2) Vise:

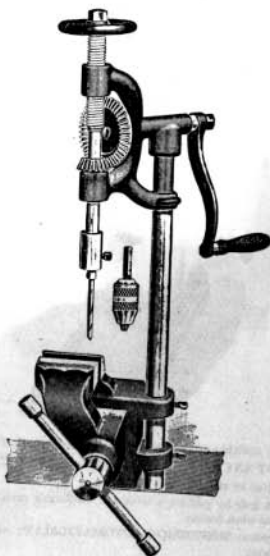
Of best material and construction; jaws $3\frac{1}{2}$ inches wide with **INSERTED STEEL FACES**.

(3) Anvil:

Steel face, 4 x 8 inches; hardie provided.

	Anvil, Vise, and Drill	Anvil and Vise	Drilling Attachment
Weight, net.....	80 lbs.	60 lbs.	20 lbs.
Price.....	\$24.00	\$13.50	\$10.50
Packed 1 in a wooden box			

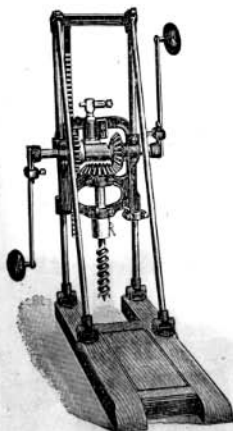
VISE AND DRILL



Similar to that shown in connection with Anvil, Vise, and Drill next preceding, except that vise is offset to give clearance for drilling.

	Weight	Price
Offset Vise and Drill.....	61 lbs.	\$19.50
Offset Vise only.....	41 lbs.	9.00
Drilling Attachment.....	20 lbs.	10.50
Packed 1 in a wooden box.		

MILLERS FALLS BORING MACHINE



Wood bottom board; upright and angle rods, spindle and cranks made of steel.

Bores vertically or **AT ANY ANGLE** from the vertical **WITHIN AN ARC** of 50°

Depth of hole regulated by stop.

Auger removed from hole by pushing a latch and continuing revolution of cranks in same direction as when boring.

Frame locked in topmost **SUSPENSION AUTOMATICALLY**; released by pressure upon a thumb latch.

ADJUSTABLE CRANKS regulating speed and power.

Regularly made to bore 12 inches but made to order for greater depths at small additional charge.

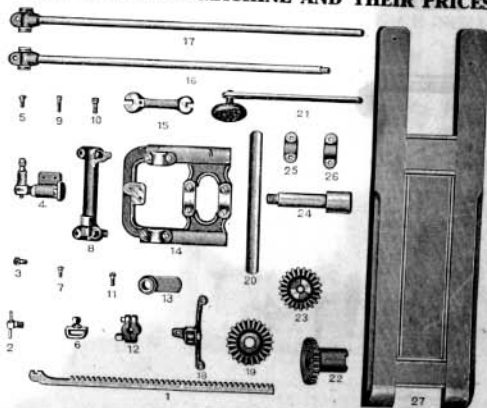
Height, 25 inches. Weight, boxed, 45 lbs.; net, 28 lbs.

Price, without augers, \$10.00.

Packed 1 in a wooden box.

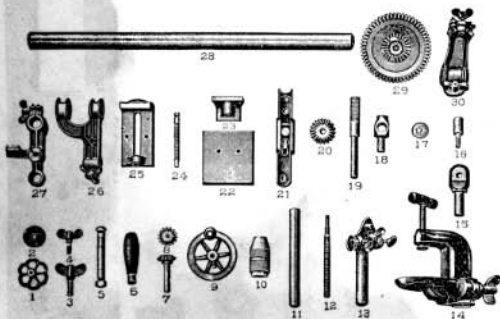
Augers in sets.....	18	23	41 quarters.
Price, per set.....	\$4.50	\$5.50	\$10.25
Sizes.....	1, 1½, 2 in.	1, 1½, 1¾, 2 in.	½, ¾, 1, 1½, 1¾, 1½, 2 in.

PARTS OF BORING MACHINE AND THEIR PRICES



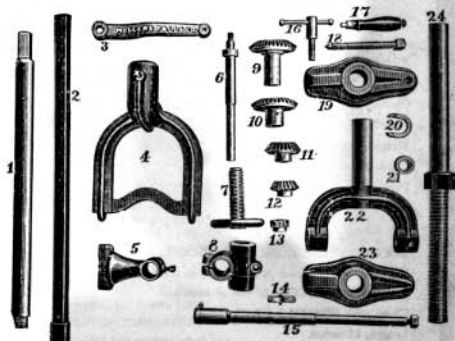
1 Rack.....	\$0.30
2 Chuck Set Screw.....	.10
3 Short Rod Set Screw.....	.05
4 Catch, complete.....	.75
5 Spider Screw.....	.05
6 Handle Clamp, complete.....	.15
7 Arbor Cap Screw.....	.05
8 Top Cap.....	.50
9 Catch Screw and Rack Screw.....	.05
10 Long Rod Set Screw.....	.05
11 Spindle Cap Screw.....	.05
12 Stop, complete.....	.05
13 Crank Casting.....	.35
14 Frame.....	.15
15 Wrench.....	2.50
16 Short Rod, complete.....	.15
17 Long Rod, complete.....	.40
18 Spider, complete.....	.40
19 Spindle Gear.....	.40
20 Arbor.....	.35
21 Adjustable Crank, complete.....	.15
22 Rack Gear.....	.45
23 Arbor Gear.....	.45
24 Chuck Spindle.....	.45
25 Arbor Cap.....	1.00
26 Spindle Cap.....	.15
27 Table.....	.15
	1.00

PARTS OF DRILL PRESSES NOS. 20 AND 21 AND THEIR PRICES



1 Vise Wheel	\$0.10
2 Fiber Washer .....	.05
3 Bench Clamp Binder Screw .....	.10
4 Frame Thumb Screw and Vise Arm Thumb Screw .....	.10
5 Crank Handle Bolt and Nut .....	.10
6 Crank Handle .....	.10
7 Arbor and Gear .....	.15
8 Spindle Gear .....	.10
9 Feed Wheel, complete .....	.30
10 Star Chuck	1.30
11 No. 21 Attachment Frame .....	.30
12 Feed Screw .....	.25
13 No. 20 Attachment, complete .....	.50
14 Bench Clamp, complete .....	.55
15 Swivel .....	.30
16 Vise Swivel Screw .....	.25
17 No. 21 Attachment Gear Screw .....	.10
18 No. 21 Attachment Gear Stud .....	.30
19 No. 21 Attachment Spindle .....	.40
20 No. 21 Attachment Pinion .....	.30
21 No. 21 Attachment Crank, complete .....	.40
22 Vise Table .....	.15
23 Vise Short Jaw .....	.25
24 Vise Feed Screw .....	.15
25 Vise Long Jaw .....	.30
26 Lower Frame, complete .....	.50
27 Upper Frame, complete .....	.45
28 Standard .....	.40
29 No. 21 Attachment Large Gear .....	.50
30 Vise Arm, complete .....	.40

PARTS AND PRICES OF ANGULAR DRILLING MACHINES AND TRACK DRILL



PART.		No. 1.	No. 2.	No. 5.	No. 3.
1	Standard .....	.....	.....	\$0.80	.....
2	Standard Extension .....	.....	.....	.50	.....
3	Crank	\$0.65	\$0.80	.80	\$1.30
4	Track Shoe .....	.....	.....	1.60	.....
5	Sliding Rest .....	.....	.....	.30	.....
6	Cross Shaft	1.30	1.60	1.60	2.50
7	Feed Wheel .....	.80	1.00	1.00	1.60
8	Double Joint	1.60	2.00	2.00	3.20
9	Large Gear .....	.65	.80	.80	1.30
*10	Gear .....	.....	.55	.55	.....
*11	Gear .....	.35	.50	.50	.70
*12	Gear .....	.....	.50	.50	.....
13	Ratchet Gear .....	.30	.40	.40	.65
14	Ratchet Dog .....	.15	.20	.20	.30
15	Drill Spindle	1.45	1.80	1.80	3.00
16	Double Joint Screw .....	.80	1.00	1.00	1.60
17	Crank Handle and Bolt .....	.15	.20	.20	.30
18	Clamp Screw .....	.25	.30	.30	.50
19	Upper Clamp .....	.40	.50	.50	.80
20	Yoke .....	.....	.30	.30	.....
21	Ball-bearing Cup .....	.15	.20	.....	.30
22	Fork Arm	2.10	2.60	2.60	4.10
23	Lower Clamp .....	.40	.50	.50	.80
24	Standard and Nut	1.60	2.00	2.00	3.20

In ordering parts, state weight of part wanted as well as number, that we may determine whether for Machine No. 1, 2, 3, or 5.

*In ordering gears state diameter and number of teeth.

AUTOMATIC BORING TOOLS



No. 3

No. 3

All metal, **NICKELED**.

Eight drill points from $\frac{1}{16}$ to $\frac{1}{4}$ inch in diameter in wooden box.

Chuck with **POSITIVE GRIP**.

Length, 10 inches.

Weight, per dozen (with tin boxes), 7½ lbs.

Price, per dozen, \$14.00.

Packed 1 in a tin box.



No. 4

No. 4

COCOBOLO handle; metal parts **NICKELED**.

Eight drill points from $\frac{1}{16}$ to $\frac{1}{4}$ inch in diameter, each in a **SEPARATE CELL** in end of handle.

Chuck with **POSITIVE GRIP**.

Length, 11 inches.

Weight, per dozen (with pasteboard boxes), 7½ lbs.

Price, per dozen, \$16.00.

Packed 1 in a pasteboard box.

BORING TOOL POINTS, NEW PATTERN



Price, per set (8 points), \$0.48; per dozen, \$0.72.

Packed 1 set or 1 dozen in a wooden box.

AUTOMATIC BORING TOOLS**No. 5**

No. 5

COCOBOLO handle; metal parts **NICKELED**. Eight drill points from $\frac{1}{8}$ to $\frac{1}{4}$ inch in diameter in wooden box.

Chuck with **POSITIVE GRIP**.

Length, 10 $\frac{1}{2}$ inches.

Weight, per dozen (with tin boxes), 8 $\frac{1}{2}$ lbs.

Price, per dozen, **\$14.00**.

Packed 1 in a tin box.

No. 6

COCOBOLO handle; metal parts **NICKELED**. Eight drill points from $\frac{1}{8}$ to $\frac{1}{4}$ inch in diameter, each in a **SEPARATE CELL** in handle and **RELEASED WITHOUT DISTURBING OTHERS**.

Chuck with **POSITIVE GRIP**.

Length, 11 inches.

Weight, per dozen, 7 lbs.

Price, per dozen, **\$17.00**.

Packed 1 in a pasteboard box.

No. 7

Same as No. 6, shown next preceding, except that handle is of stained hardwood.

Price, per dozen, **\$16.00**.

Packed 1 in a pasteboard box.

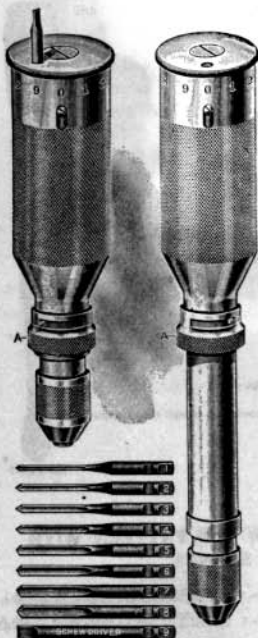


Nos. 6 and 7

BORING TOOL POINTS; OLD PATTERN WITH FLUTED SHANKS

Price, per set (8 points), **\$0.48**; per dozen, **\$0.72**.

Packed 1 set or 1 dozen in a wooden box.



AUTOMATIC STAR POCKET BORER

No. 8

Handsomely knurled and **NICKELED** steel.

May be **COMPRESSED** into convenient **SIZE FOR THE POCKET**.

MAGAZINE HANDLE, containing **8 DRILL POINTS**, ranging from $\frac{1}{8}$ to $\frac{1}{4}$ inch in diameter, and a **SCREW DRIVER BIT**

Device for releasing a bit from handle **WITHOUT DISTURBING THE OTHERS**.

Screw driver bit to be used when tool is compressed.

Chuck with **POSITIVE GRIP**.

Length, extended, $7\frac{1}{2}$ inches; compressed, $4\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), $8\frac{1}{2}$ lbs.

Price, per dozen, **\$26.50**.

Packed 1 in a pasteboard box.

BIT GAUGE

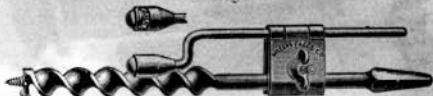
No. 1



Clamps to auger bit of any size.
 Tightens on bit and gauge spindle simultaneously.
 Length, 4½ inches.
 Weight, per dozen, 2 lbs.
 Price, per dozen, \$4.00.
 Packed ½ dozen in a pasteboard box.

ANTI-FRICTION BIT GAUGE

No. 2



Entirely **POLISHED AND NICKELED**.
 Clamps to auger bit of any size.
 Tightens on bit and gauge spindle at same time.
 Ball in end, running on six smaller balls, to **PREVENT DEFACING DELICATE MATERIAL** when in contact with gauge.
 Length, 5½ inches.
 Weight, per dozen, 1½ lbs.
 Price, per dozen, \$5.00.
 Packed ½ dozen in a pasteboard box.

BIT GAUGE

No. 36



NICKEL PLATED.
 A simple device to be clamped at any point on auger bit.
 Contact with work by **TWO SMOOTH SHOES**, so made as not to mar material.
 Weight, per dozen, 2 lbs.
 Price, per dozen, \$4.50.
 Packed ½ dozen in a pasteboard box.

RATCHET SCREW DRIVER**No. 1**

COCOBOLO handle; metal parts, including bits, **NICKELED**.

Ratchets in either direction or may be used as an ordinary screw driver.

Three bits, 5, 7, and 9 inches long respectively, to fit screws of different sizes.

Length of handle, 7 inches.

Weight, per dozen sets (with wooden and pasteboard boxes), 19 lbs.

Price, per dozen sets, **\$23.50**.

Packed each set in a substantial wooden box within a pasteboard carton.

RATCHET SCREW DRIVER**No. 2**

The same as Ratchet Screw Driver No. 1, shown next preceding, excepting that it has only one bit set permanently in the handle.

Length, 10 inches.

Weight, per dozen (with pasteboard boxes), 7 lbs.

Price, per dozen, **\$16.00**.

Packed 1 in a pasteboard box.

DUPLEX SCREW DRIVER**Nos. 1 and 3**All metal parts **NICKELED**.**HAND FORGED**, carefully tempered, reversible bit; **SQUARE REAMER** on one end for starting screw holes and **SCREW DRIVER** on the other end.

Nos.....	1 (oanoboko handle)	3 (maple handle)
Length.....	9½ in.	9½ in.
Weight, per dozen.....	6 lbs.	6 lbs.
Price, per dozen.....	\$6.30	\$4.75

Packed ½ dozen in a pasteboard box.

Bits only, per dozen, \$2.50.

DUPLEX SCREW DRIVER**No. 2**Tempered steel, **NICKELED**.**REVERSIBLE** bit, screw driver, and reamer combined.

Length, 4 inches.

Price, per dozen, \$4.00.

Packed 1 in a leather case.

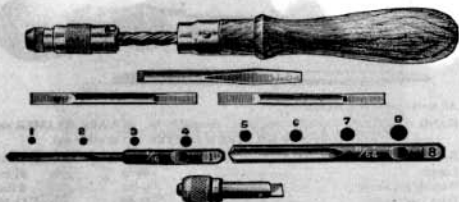
HAND FORGED ROUND SCREW DRIVER BIT

Nos.....	1	2
Length.....	5 in.	8 in.
Weight, per dozen.....	1½ lbs.	2½ lbs.
Price, per dozen.....	\$2.00	\$2.50

Packed 1 dozen in a pasteboard box.

AUTOMATIC SCREW DRIVERS

Nos. 11 and 12

**COCOBOLO** handle; metal parts **NICKELED**.**REVOLVING SLEEVE** to be grasped between thumb and fingers to steady the tool.**LOCKING DEVICE** to hold bits in chuck.

Spiral may be locked rigid and tool used as an ordinary screw driver.

Three screw driver bits, four inches long, two with double ends, provided, to fit screws of varying sizes.

Length, extended, 15 inches.

Length, closed, 9½ inches.

No. 11 has 3 screw driver bits.

No. 12 has 3 screw driver bits, drill chuck, and 8 drill points.

Nos.

11 12

Weight, per dozen (with pasteboard boxes)

10 lbs. 12 lbs.

Price, per dozen

\$17.00 \$23.50

Packed 1 in a pasteboard box.

AUTOMATIC SCREW DRIVERS

Nos. 20 and 21

Stained hardwood handle; metal parts **NICKELED**.**REVOLVING SLEEVE** to be grasped between thumb and fingers to steady the tool.**LOCKING DEVICE** to hold bits in chuck.

Tool may be used as an ordinary screw driver by locking the spiral.

Three bits, four inches long, to fit screws of varying sizes.

Nos.

20 21

Length, extended

13 in. 15 in.

Length, closed

9½ in. 10 in.

Weight, per dozen (with pasteboard boxes)

7½ lbs. 10 lbs.

Price, per dozen

\$14.00 \$14.50

Packed 1 in a pasteboard box.

IN AND OUT SCREW DRIVER**No. 41**

Stained hardwood handle; exposed metal parts **NICKELED**.

Two spiral grooves on plunger, permitting chuck to be **REVOLVED EITHER TO RIGHT OR LEFT**; grooves, being of different depths, **AVOID WEAR AT POINTS OF INTERSECTION AND SO PITCHED** as to make the tool a powerful one.

Spiral may be locked to make ordinary screw driver of **DIFFERENT LENGTHS**.

LOCKING DEVICE to hold bits in chuck

Three screw driver bits, two with double end, supplied, to fit screws of varying sizes.

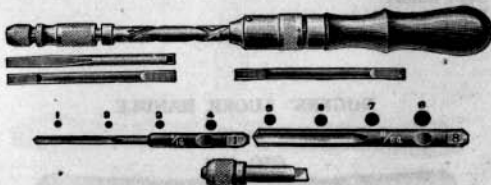
Length, extended, 17 $\frac{1}{2}$ inches.

Length, closed, 12 inches.

Weight, per dozen (with pasteboard boxes), 15 lbs.

Price, per dozen, **\$23.00**.

Packed 1 in a pasteboard box.

IN AND OUT SCREW DRIVER**No. 42**

The same as Screw Driver No. 41, shown next preceding, except that drill chuck and eight wood boring points, ranging from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, are supplied.

Weight, per dozen (with pasteboard boxes), 17 lbs.

Price, per dozen, **\$29.50**.

Packed 1 in a pasteboard box.

PRATT'S PATENT AUGER HANDLE

Nos. 1 and 2



Stout ash wood handle.

Steel band, three inches long, split longitudinally, opens to admit all sizes and shapes of auger shanks, excepting largest sizes of ship augers.

Centers augers correctly.

	1	2
Nos.	14 in.	17 in.
Length	16 lbs.	18 lbs.
Weight, per dozen	\$8.00	\$8.00
Price, per dozen		
Packed $\frac{1}{2}$ dozen in a pasteboard box.		

ROGERS' AUGER HANDLE

No. 3



Body casting malleable iron; screw steel; handles ash.

A light, strong handle.

Length, 16 inches.

Weight, per dozen, 17 lbs.

Price, per dozen, \$6.00.

Packed $\frac{1}{2}$ dozen in a pasteboard box.**ROGERS' AUGER HANDLE**

No. 03



Excepting longer clamp, operated by two screws, the same as Auger Handle No. 3, shown next preceding.

Length, 16 inches.

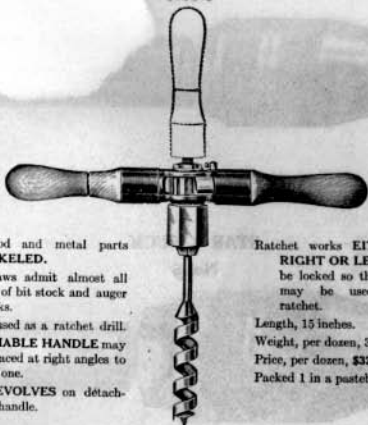
Weight, per dozen, 18 lbs.

Price, per dozen, \$6.50.

Packed $\frac{1}{2}$ dozen in a pasteboard box.

PRATT'S RATCHET AUGER HANDLE

No. 4



Ash wood and metal parts
NICKELED.

Chuck jaws admit almost all
sizes of bit stock and auger
shanks.

May be used as a ratchet drill.

DETACHABLE HANDLE may
be placed at right angles to
fixed one.

Wood **REVOLVES** on detach-
able handle.

Ratchet works **EITHER TO
RIGHT OR LEFT** or may
be locked so that the tool
may be used without
ratchet.

Length, 15 inches.

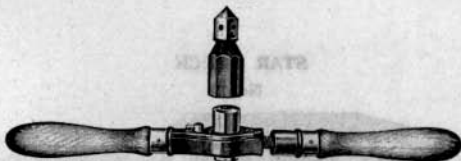
Weight, per dozen, 36 lbs.

Price, per dozen, **\$32.00.**

Packed 1 in a pasteboard box.

GUNN'S RATCHET AUGER HANDLE

No. 5



Malleable iron, steel, and second growth ash wood.
Holds and centers auger shanks of all ordinary sizes.

One handle **DETACHABLE.**

Ratchet works **EITHER TO RIGHT OR LEFT** or may be locked so tool may be used
as if without ratchet.

Attachment, as shown in illustration, provided to **CONVERT TOOL INTO A
RATCHET DRILL.**

Length, 16½ inches.

Weight, per dozen, 26 lbs.

Price, per dozen, **\$20.00.**

Packed 1 in a pasteboard box.

STAR CHUCK

No. 5

**STAR CHUCK**

No. 6

**STAR CHUCK**

No. 7



STAR CHUCKS**Nos. 5, 6, and 7**

Handsomely **NICKELED**, substantial chucks.

Three jaws, carefully adjusted in a socket, opening with a spring and closing with pressure from spindle.

GRIP TENACIOUSLY, and **CENTER ACCURATELY**, round shanks.

Nos.....	5	6	7
Capacity.....	0- $\frac{1}{4}$ in.	0- $\frac{1}{2}$ in.	0- $\frac{3}{4}$ in.
Outside diameter of chuck.....	1 in.	1 $\frac{1}{2}$ in.	1 $\frac{3}{4}$ in.
Dimensions of shank.....	1 $\frac{1}{2}$ x $\frac{1}{2}$ in.	3 $\frac{1}{2}$ x $\frac{1}{2}$ in.	4 $\frac{1}{2}$ x $\frac{1}{2}$ in.
Weight.....	7 oz.	12 oz.	20 oz.
Price.....	\$1.25	\$2.00	\$2.50

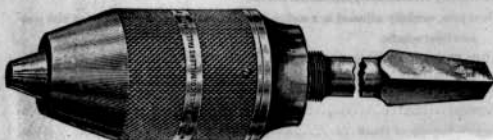
Packed 1 in a pasteboard box.

**CHUCKS FURNISHED TO ORDER WITH SHANKS AS FOLLOWS
WITHOUT EXTRA CHARGE:**

Nos.....	5	6	7
Diameter of shank.....	1 $\frac{1}{2}$ in.	1 $\frac{1}{2}$ in.	1 $\frac{1}{2}$ or $\frac{3}{4}$ in.

Special shanks, straight or taper, at additional charge of 50 cents each.

When ordering taper shanks, take care to state exact taper wanted.

STAR CHUCK**No. 15****STAR CHUCK****No. 16****STAR CHUCK****No. 17**

The same as Star Chucks Nos. 5, 6, and 7, shown next preceding, except that shanks are of the bit stock pattern, permitting chucks to be used in bit braces, breast drills, and other tools.

Nos.	15	16	17
Capacity	0- $\frac{1}{4}$ in.	0- $\frac{3}{8}$ in.	0- $\frac{1}{2}$ in.
Outside diameter of chuck	1 in.	1 $\frac{1}{4}$ in.	1 $\frac{3}{4}$ in.
Length of shank	2 in.	2 $\frac{1}{4}$ in.	2 $\frac{1}{2}$ in.
Weight	6 oz.	10 oz.	17 oz.
Price	\$2.00	\$2.50	\$3.00

Packed 1 in a pasteboard box.

MASTER LATHE CHUCK**No. 150**

NICKELED chuck; solid steel shank. Chuck holds, and centers with reasonable accuracy, **ROUND** shanks from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter, **BIT STOCK** and No. 1 Morse **TAPER** shanks.

Whole length, $7\frac{1}{2}$ inches.
Outside diameter of chuck, $1\frac{1}{2}$ inches.

Dimensions of shank, $\frac{1}{2} \times 4$ inches.

Weight, 29 oz.

Price, \$2.00.

Packed 1 in a pasteboard box.

CHUCKS FURNISHED TO ORDER WITH SHANKS $\frac{1}{4}$ OR $\frac{1}{2}$ INCH IN DIAMETER WITHOUT EXTRA CHARGE.

Special shanks, straight or *taper, to order at \$0.50 extra each.



No. 150

BARBER LATHE CHUCK**No. 151**

The same as Lathe Chuck No. 150, shown next preceding, except that chuck is of the **BARBER IMPROVED** pattern, made especially for bit stock and many sizes of round shanks.

Whole length, $7\frac{1}{2}$ inches.
Outside diameter of chuck, $1\frac{1}{2}$ inches.

Dimensions of shank, $\frac{1}{2} \times 4$ inches.

Weight, 26 oz.

Price, \$2.00.

Packed 1 in a pasteboard box.

CHUCKS FURNISHED TO ORDER WITH SHANKS $\frac{1}{4}$ OR $\frac{1}{2}$ INCH IN DIAMETER WITHOUT EXTRA CHARGE.

Special shanks, straight or taper, to order at \$0.50 extra each.



No. 151

STAR HACK SAWS

THROUGHOUT THE WORLD THE STANDARD OF HACK SAWS.

TEMPERED TO THE UTMOST WITHOUT INJURING THE TOUGHNESS AND TOUGHENED TO THE UTMOST POSSIBLE WITHOUT INJURING THE TEMPER.

Made from the HIGHEST GRADE OF STEEL according to our SPECIAL FORMULA.

PERFECTLY TOOTHED with PATENT SET; SCIENTIFICALLY DESIGNED and ABSOLUTELY CORRECT as to WIDTH, THICKNESS, and NUMBER OF TEETH to the inch.

All saws of UNIFORM EXCELLENCE

Made with 14 and 24 teeth to the inch. Blades with 14 teeth to the inch are ADAPTED TO ALL KINDS OF HACK SAW WORK AND MATERIALS except thin stock and tubing with thin walls, for which blades with 24 teeth should be used. BLADES WITH 14 TEETH TO THE INCH ARE SUPPLIED UNLESS 24 TEETH OR "FINE" IS SPECIFIED.

Owing to the fact that Star Hack Saws are universal in their application the NECESSITY IS OBIATED OF DEALERS' CARRYING IN STOCK BLADES OF VARYING WIDTHS, THICKNESS, AND NUMBER OF TEETH TO THE INCH.

Length and width.....	6x $\frac{1}{2}$ in.	7x $\frac{1}{2}$ in.	8x $\frac{1}{2}$ in.	9x $\frac{1}{2}$ in.
Weight, per gross.....	2 $\frac{1}{2}$ lbs.	3 lbs.	3 $\frac{1}{2}$ lbs.	3 $\frac{1}{2}$ lbs.
Price, per dozen.....	\$0.30	\$0.32	\$0.34	\$0.38
Price, per gross.....	\$3.50	\$3.75	\$4.00	\$4.50
Length and width.....	10x $\frac{1}{2}$ in.	11x $\frac{1}{2}$ in.	12x $\frac{1}{2}$ in.	12x $\frac{1}{2}$ in.
Weight, per gross.....	4 $\frac{1}{2}$ lbs.	5 lbs.	5 $\frac{1}{2}$ lbs.	10 lbs.
Price, per dozen.....	\$0.42	\$0.46	\$0.50	\$0.67
Price, per gross.....	\$5.00	\$5.50	\$6.00	\$8.00

Packed $\frac{1}{2}$ gross in a pasteboard box.

STAR HACK SAW FRAME

No. 2



COCOBOLO handle; **POLISHED AND NICKED** steel.

Stiff, solid frame for 8-inch blades only.

Blades strained by **TURNING OF THE HANDLE**; may be faced in four directions.

Knurled check nut screwing down and overlapping the end of the blade to hold it in place while adjusting it in the frame.

Depth under back, 2½ inches.

Weight, per dozen (with pasteboard boxes), 10½ lbs.

Price, per dozen, with one 8-inch blade in each frame, **\$11.00.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAMES

Nos. 17 and 18



COCOBOLO handle; **POLISHED AND NICKED** steel frame.

Especially heavy and stiff stock, 1x½ inch; slightly **HOG-BACKED**, adding to strength.

Blades strained by **TURNING OF THE HANDLE**; may be faced in four directions.

Knurled check nut, forced by a spring to overlap and hold blade in place while it is being inserted in the frame.

Nos.	17	18
Capacity	9 and 10 in.	11 and 12 in.
Depth under back	3 in.	3 in.
Weight, per dozen (with pasteboard boxes)	22 lbs.	27 lbs.
Price, per dozen, with one 10-inch blade in each frame	\$13.00	
Price, per dozen, with one 12-inch blade in each frame		\$15.50

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 20



COCCOLO handle; POLISHED AND NICKELLED steel frame.

Especially heavy and stiff stock, $1\frac{1}{2} \times \frac{1}{4}$ inches; slightly **HOG-BACKED**, adding to strength.

Blades strained by **TURNING OF THE HANDLE**; may be faced in four directions. Knurled check nut, forced by a spring to overlap and hold blade in place while it is being inserted in the frame.

Capacity, 8 and 9 inches.

Weight, per dozen, with pasteboard boxes, 16 lbs.

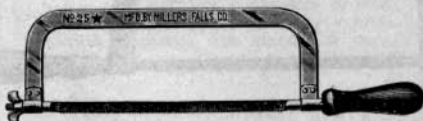
Depth under back, $3\frac{1}{4}$ inches.

Price, per dozen, with one 8-inch blade in each frame, **\$12.00.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 25



Stiff, **POLISHED AND NICKELLED steel frame**, made from stock $1\frac{1}{2} \times \frac{1}{4}$ inches, stained hardwood handle.

Blade strained with thumb nut and screw stud; may be faced in four directions.

Capacity, 8 inches.

Depth under back, $3\frac{1}{4}$ inches.

Weight, per dozen (with pasteboard boxes), 13 lbs.

Price, per dozen, without blades, **\$6.00.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 15



POLISHED AND NICKELED frame of **STIFF, HEAVY** steel, $1\frac{1}{2}$ inch; **COCOBOLO** handle.

Blades strained by **TURNING OF THE HANDLE**; may be faced in four directions. Knurled check nut to screw down and overlap the end of the blade to hold it in place while it is being adjusted in the frame.

Capacity, 12 inches.

Depth under back, $5\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 30 lbs.

Price, per dozen, with one 12-inch blade in each frame, **\$19.50**.

Packed 1 in a pasteboard box.

STAR HACK SAW FRAMES

Nos. 14, 24 and 240



Beech wood handle; extra heavy steel stock, $1\frac{1}{2}$ inch.

Especially for sawing steel **RAILS, GIRDERS, AND OTHER LARGE WORK**.

Blades strained by thumb nut and screw stud; may be faced in four directions.

Depth under back, 10 $\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 48 lbs.

	Polished and Nickeled	Japan- ned	Polished and Nickeled
Nos.....	14	24	240*
Capacity.....	12 in.	12 in.	12 in.
Price, per dozen, with one 12-inch blade in each frame	\$23.00	\$20.00	\$25.00
Packed 1 in a pasteboard box.			

*No. 240 is supplied with an auxiliary handle as shown on following page; in other respects same as No. 14.

STAR HACK SAW FRAMES

Nos. 014, 014½, and 015



Extra heavy steel stock, 1½ inch, **POLISHED AND NICKED**; stained hardwood handles.

Main handle pitched **SO AS TO ECONOMIZE ENERGY**; may be moved up or down.

Auxiliary handle, loosened or tightened by turning, may be **SHIFTED TO ANY PART OF THE FRAME**, materially **STEADYING THE FRAME** when placed at the top, thus economizing in blades, time, and effort, and, when placed opposite main handle, **PERMITTING TWO OPERATORS**. Its clamp may be used as a wrench to tighten the nut of the main handle.

Blades strained by thumb nut and screw stud; may be faced in four directions.

Nos.....	014	014½	015
Capacity.....	12 in.	12 in.	12 in.
Depth under back.....	10½ in.	7½ in.	5½ in.
Weight, per dozen (with pasteboard boxes).....	52 lbs.	44 lbs.	38 lbs.
Price, per dozen, with one 12-inch blade in each frame.....	\$25.00	\$23.00	\$21.00

Packed 1 in a pasteboard box

STAR HACK SAW FRAME

No. 6



COCOBOLO handle; POLISHED AND NICKED steel stock, $\frac{7}{8} \times 1\frac{1}{4}$ inch.
STIFF, STRONG back.

QUICKLY ADJUSTABLE for blades from 6 to 12 inches long.

Blades strained by **TURNING OF THE HANDLE**; may be faced in four directions.
Knurled check nut screwing down to overlap the end of the blade and hold it in place while being adjusted in the frame.

Weight, per dozen (with pasteboard boxes), 18 lbs.

Depth under back, $2\frac{1}{2}$ inches.

Price, per dozen, with one 12-inch blade in each frame, \$15.50.

Packed 1 in a pasteboard box.

STAR HACK SAW FRAMES

Nos. 7 and 8



Stained hardwood handle; steel frame of stock, $\frac{7}{8} \times 1\frac{1}{4}$ inch.

QUICKLY ADJUSTABLE for blades from 6 to 12 inches long.

Blades strained by turning of a thumb nut; may be faced in four directions.

ADJUSTABLE HANDLE, which can be **SHIFTED IN ITS POSITION ON THE FRAME**, and **THE ANGLE OF WHICH**, as shown by dotted lines, **CAN BE CHANGED** simply by turning of the handle.

Weight, per dozen (with pasteboard boxes), 19½ lbs.

Depth under back, 3½ inches.

No. 7, nicked, except black enameled handle clamp, per dozen, with one 12-inch blade in each frame, \$12.00.

No. 8, entirely polished and nicked, per dozen, with one 12-inch blade in each frame, \$16.00.

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 38



Stained hardwood handle; steel frame, **POLISHED AND NICKED**, of stock $\frac{7}{8} \times \frac{1}{2}$ inch.

QUICKLY ADJUSTABLE for blades from 6 to 12 inches long

Blades strained by turning of a thumb nut; may be faced in four directions.

ADJUSTABLE HANDLE, which can be **SHIFTED IN ITS POSITION ON THE FRAME**, and the **ANGLE OF WHICH**, as shown by dotted lines, **CAN BE CHANGED** simply by turning of the handle.

BACK GRADUATED WITH SCALE from 1 to 12 inches with $\frac{1}{4}$ -inch intervals, a device of much convenience in measuring material to be cut.

Weight, per dozen (with pasteboard boxes), 19½ lbs.

Depth under back, 3½ inches.

Price, per dozen, with one 12-inch blade in each frame, **\$19.50**.

Packed 1 in a pasteboard box.

STAR HACK SAW FRAMES

Nos. 9 and 49



COCOBOLO handle; **POLISHED AND NICKED** steel.

STEEL SHEATH over the back making frame **LIGHT** and **STRONG**.

Blades strained by **TURNING OF THE HANDLE**; may be faced in four directions

Adjustable for blades from 8 to 12 inches long.

Knurled check nut screwing down and overlapping the end of the blade to hold it in place while inserting it in the frame.

Nos	9	49
Depth under back	2½ in.	3½ in.
Weight, per dozen (with pasteboard boxes)	12½ lbs.	16½ lbs.
Price, per dozen, with one 10-inch blade in each frame	\$15.00	\$16.00

Packed 1 in a pasteboard box.

STAR HACK SAW FRAMES

Nos. 19 and 39



Steel frame of stock, $\frac{3}{4}$ x $1\frac{1}{2}$ inch, and steel sheath; stained hardwood handle.
Adjustable for blades from 6 to 12 inches long.

Blade strained by turning of thumb nut and may be faced in four directions.

ADJUSTABLE HANDLE, which can be **SHIFTED IN ITS POSITION ON THE FRAME**, and the **ANGLE OF WHICH**, as shown by dotted lines, **CAN BE CHANGED** simply by turning of the handle.

Depth under back, $3\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 21 lbs.

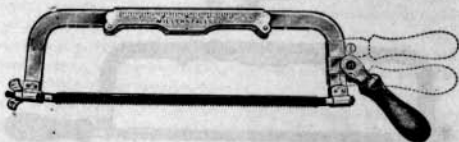
No. 19, with polished and nicked handle clamp, per dozen, with one 10-inch blade in each frame, **\$19.00**.

No. 39, with black enameled handle clamp, per dozen, with one 10-inch blade in each frame, **\$13.00**.

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 59



Stained hardwood handle; polished and nicked steel frame and sheath, the former of stock $\frac{3}{4}$ x $1\frac{1}{2}$ inch.

Adjustable for blades from 6 to 12 inches long.

Blade strained by turning of thumb nut and may be faced in four directions.

ADJUSTABLE HANDLE, which can be **SHIFTED IN ITS POSITION ON THE FRAME**, and the **ANGLE OF WHICH**, as shown by dotted lines, **CAN BE CHANGED** simply by turning of the handle.

BACK GRADUATED WITH SCALE from 1 to 6 inches with $\frac{1}{2}$ -inch intervals, a device of much convenience in measuring material to be cut.

Weight, per dozen (with pasteboard boxes), 21 lbs.

Depth under back, $3\frac{1}{2}$ inches.

Price, per dozen, with one 10-inch blade in each frame, **\$22.00**.

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 26



A light, stiff frame of $\frac{1}{8} \times \frac{1}{4}$ inch steel stock, nickeled; stained hardwood handle.

Steel sheath, solid to the frame at one end and adjustable at the other.

Adjustable for blades from 8 to 12 inches long.

Blade strained by turning of a thumb nut and may be faced in four directions.

Weight, per dozen (with pasteboard boxes), 16½ lbs.

Depth under back, 3¼ inches.

Price, per dozen, with one 10-inch blade in each frame, \$8.40.

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 27



Frame of $\frac{1}{8} \times \frac{1}{4}$ inch steel stock, **POLISHED AND NICKELLED**; stained hardwood handle.

Extensible for blades from 8 to 12 inches.

Blades strained by thumb nut and screw stud; may be faced in four directions.

Weight, per dozen (with pasteboard boxes), 12½ lbs.

Depth under back, 3¼ inches.

Price, per dozen, with one 10-inch blade in each frame, \$12.00.

Packed 1 a pasteboard box.

STAR HACK SAW FRAMES

Nos. 10 and 11



COCOBOLO handle; **POLISHED AND NICKED** steel stock, $\frac{1}{16} \times \frac{1}{4}$ inch.

COMPACT, STIFF frame, with **EXTRA STRENGTH IN THE MIDDLE OF THE BACK** where there is the greatest strain.

Extensible for blades from 8 to 12 inches, with scale for the different lengths on the back of the frame.

Blades strained by **TURNING OF THE HANDLE**; may be faced in four directions.

Knurled check nut screwing down and overlapping the end of the blade to hold it in place while it is being inserted in the frame.

Nos.....	10	11
Depth under back.....	2½ in.	3½ in.
Weight, per dozen (with pasteboard boxes).....	15½ lbs.	16½ lbs.
Price, per dozen, with one 10-inch blade in each frame....	\$15.50	\$16.50
Packed 1 in a pasteboard box.		

MAGAZINE STAR HACK SAW FRAMES

Nos. 28, 29, and 30



Stained hardwood handles; steel frames **POLISHED AND NICKELED** on the back and japanned on the sliding clamp and the end next the handle, except No. 30, which has a **COCOBOLO** handle and all metal parts **POLISHED AND NICKELED**.

Backs of rectangular tubing, affording **LIGHTNESS** and **STRENGTH** and a **RECEPTACLE FOR SIX SAW BLADES** closed with a hinged cap.

Blades always **CONVENIENT TO HAND** and **SAFE FROM ACCIDENTAL BREAKAGE**.

Sliding clamp **INSTANTLY ADJUSTABLE** to different lengths of blades.

Blades strained by **TURNING OF THE HANDLE**; may be faced in four directions.

Knurled check nut screwing down and overlapping the end of the blade to hold it in place while it is being inserted in the frame.

No.	28	29	30
Capacity.....	6 to 9 in.	8 to 12 in.	8 to 12 in.
Depth under back.....	3½ in.	3½ in.	3½ in.
Weight, per dozen (with pasteboard boxes).....	19 lbs.	21 lbs.	21 lbs.
Price, per dozen, with one 9-in. blade in each frame.....	\$20.00		
Price, per dozen, with one 12-in. blade in each frame.....		\$20.00	
Price, per dozen, with one 12-in. blade in each frame.....			\$27.50

Packed 1 in a pasteboard box.

MAGAZINE STAR HACK SAW FRAME

No. 35



Stained hardwood handle; black enameled cast iron frame.

Back of frame **RECESSED TO HOLD THREE BLADES** or less on each side; blades held in place by a flat spring.

Blades strained by turning a thumb nut and may be faced in four directions.

Capacity, 12 inches.

Depth under back, 2½ inches.

Weight, per dozen (with pasteboard boxes), 22 lbs.

Price, per dozen, without blades, \$7.00.

Packed 1 in a pasteboard box.

MAGAZINE STAR HACK SAW FRAME**No. 40**

The same as Hack Saw Frame No. 35, shown next preceding, except that the blades are sprung into the magazine and retained by the casting's lapping over their ends.

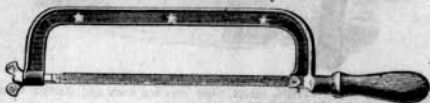
Capacity, 12 inches.

Depth under back, 2½ inches.

Weight, per dozen (with pasteboard boxes), 22 lbs.

Price, per dozen, without blades, \$7.00.

Packed 1 in a pasteboard box.

STAR HACK SAW FRAMES**Nos. 4A, 4B, 4C, and 4D**

Stained hardwood handle; black enameled frame.

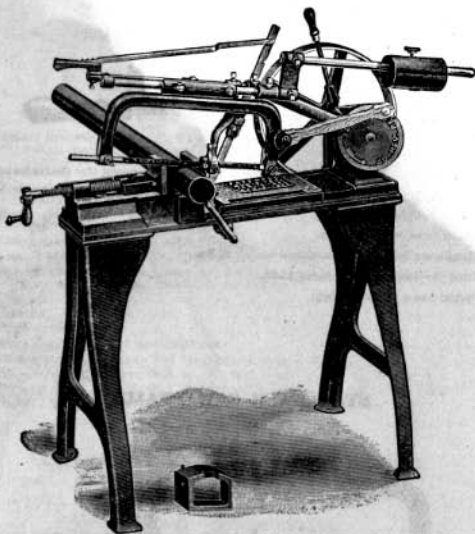
Blades strained with thumb screw and screw stud; may be faced in four directions.

Nos.	4A	4B	4C	4D
Capacity	8 in.	9 in.	10 in.	12 in.
Depth under back	2½ in.	2½ in.	2½ in.	2½ in.
Weight, per dozen	12½ lbs.	13½ lbs.	15 lbs.	17½ lbs.
Price, per dozen, without blades	\$4.00	\$4.00	\$4.25	\$4.50

Packed ½ dozen in a pasteboard box.

STAR POWER HACK SAW

No. 89



REQUIRES NO ATTENTION, except when inserting work and starting machine;
STOPS AUTOMATICALLY when cut is made.

Adjustable, **SELF-FEEDING**, cutting fast or slow according to material at work on.
Adapted to all kinds of work, of all shapes and sizes up to $4\frac{1}{2}$ inches in diameter.

Power transmitted by direct drive.

Six 12-inch blades furnished with each machine; also block to permit the use of full length of blades.

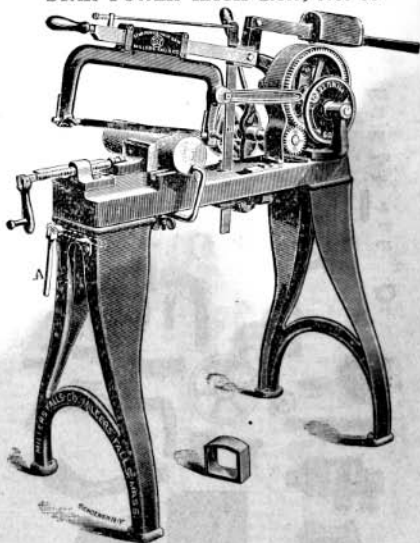
Speed recommended, 45 strokes a minute.

Floor space, 18x30 inches; distance from floor to top of bed, 28 inches; capacity, 10, 11, and 12 inch blades; size of pulley, $13\frac{1}{2}$ x2 $\frac{1}{2}$ inches; weight, boxed, 222 lbs.; crated, 200 lbs.; net, 168 lbs.

Price, \$25.00.

For prices of parts see page 96.

STAR POWER HACK SAW, No. 90



GEAR DRIVE giving great **STEADINESS** to the stroke. **QUICK RETURN MOVEMENT** of saw frame, thus saving time, the speed of back stroke being just twice that of cutting stroke.

Saw frame **SLIGHTLY LIFTED ON BACK STROKE**, **PROLONGING THE LIFE OF THE BLADE**.

An attachment provided which, by lifting lever A, as shown in illustration, **HOLDS THE BLADE IN SUSPENSION** a trifle above the work. This permits the use of both hands in adjusting the work, or measuring it, etc. A support on the bed on the cut-off side of the blade **TO PREVENT THE MATERIAL FROM DROPPING OFF WHEN CUT IS NEARLY FINISHED**. An adjusting screw in the head to take up any wear on the arm. A **REMOVABLE VISE NUT** in the bed, which can be replaced in case of wear. Working parts under the bed **AWAY FROM DUST AND DIRT**.

STOPS AUTOMATICALLY when cut is made.

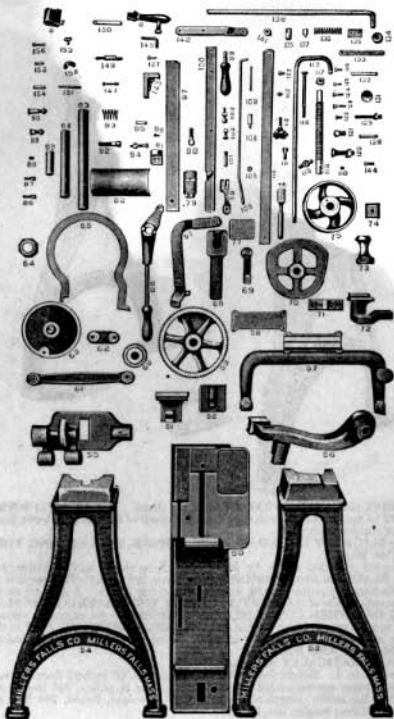
Back geared 3 to 1. Height from floor to top of bed, 28 inches; floor space, 20x46 inches; strokes recommended per minute, 60; size of pulley, 2x6 inches; cutting capacity, 5x5 inches; length of blade, 12 inches; weight, boxed, 294 lbs.; weight, crated, 258 lbs.; weight, net, 215 lbs.

Price, \$35.00.

For prices of parts see pages 94 and 95.

PARTS OF STAR POWER HACK SAW

No. 90

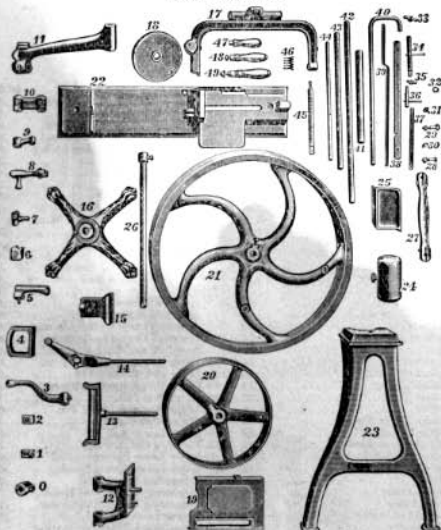


PRICES OF PARTS OF STAR POWER HACK SAW

No. 90

0 Clutch Collar.....	\$0.40	102 Elevator Bar Stop Bolt.....	\$0.05
8 Vise Handle.....	.25	103 Elevator Bar Adjusting Screw.....	.08
50 Bed.....	5.00	105 Elevator Bar Trip Rod.....	.10
51 Vise Jaw.....	.50	106 Elevator Bar Trip Rod Nut.....	.05
52 Vise Nut.....	.40	108 Elevator Bar Trip Rod Stud.....	.08
53 Front Leg.....	2.50	109 Elevator Bar Trip Rod Spring.....	.05
54 Rear Leg.....	2.50	110 Weight Bar.....	.35
55 Head.....	3.00	111 Weight Bar Screw.....	.10
56 Arm.....	3.00	112 Weight Screw.....	.15
57 Frame.....	4.00	113 Gauge Bar.....	.30
58 Frame Cover.....	.35	114 Gauge Bar Clamp Bolt.....	.15
59 Large Gear.....	2.50	115 Gauge Bar Clamp Bolt Wing.....	
60 Small Gear.....	1.25	Nut.....	.10
61 Pitman.....	.50	116 Vise Screw.....	.45
62 Link.....	.35	117 Vise Screw Collar.....	.15
63 Face Plate.....	.75	118 Vise Screw Collar Screw.....	.03
64 Adjusting Screw Check Nut.....	.25	120 Vise Nut Clamp Bolt.....	.15
65 Gear Guard.....	.75	121 Vise Jaw Screw.....	.15
66 Clutch Lever.....	.75	122 Knockoff Screw.....	.08
67 Lifter Lever.....	.75	123 Knockoff Strap Screw.....	.05
68 Lifter Box.....	1.00	124 Knockoff Lever and Link Screw.....	.05
69 Lifter Cam.....	.35	125 Knockoff Center Lever Screw.....	.05
70 Cam.....	1.00	126 Knockoff and Link Screw.....	.05
71 Knockoff.....	.25	127 Lifter Box Cover Screw.....	.05
72 Knockoff Lifter.....	.35	128 Lifter Box Raising Pin.....	.05
73 Gauge Clamp.....	.35	129 Lifter Box Adjusting Screw.....	.20
74 Gauge Top.....	.20	131 Lifter Box Disc.....	.10
75 Pulley.....	1.00	132 Lifter Box and Lever Pin.....	.08
76 Gauge Lifter Handle.....	.35	133 Connecting Strap.....	.10
77 Lifter Cover.....	.20	134 Lifter Lever Roll.....	.15
78 Clutch Lever Link.....	.25	135 Elevator Catch Plate.....	.10
79 Adjusting Screw.....	1.50	136 Lifter Lever Spring.....	.08
81 Elevator Stop.....	.15	137 Lifter Lever Spring Stud.....	.08
82 Weight.....	1.00	138 Measuring Lifter Rod.....	.20
83 Drive Arbor.....	.30	139 Measuring Lifter Rod Head.....	.25
84 Gear Arbor.....	.25	141 Measuring Lifter Rod Collar.....	.15
85 Face Plate Arbor.....	.15	142 Center Lever.....	.20
86 Gear Screw.....	.08	143 Measuring Lifter Rod Bearing.....	
87 Cam and Clutch Collar Screw.....	.08	Casting.....	.20
88 Small Gear Screw.....	.05	144 Measuring Lifter Rod Bearing.....	
89 Gear Link Screw.....	.15	Screw.....	.05
90 Face Plate Link Screw.....	.20	145 Measuring Lifter Rod Bearing.....	
92 Head Lock Screw.....	.20	Rest.....	.10
93 Collar Spring.....	.08	147 Frame Cover Screw.....	.08
94 Pitman Screw.....	.05	149 Short Stud.....	.15
95 Pulley Pin.....	.03	150 Long Stud.....	.15
96 Catch Plate and Gear Guard.....		151 Stud Pin.....	.05
Screw.....	.05	152 Stud Wing Nut.....	.10
97 Guide Bar.....	.40	153 Stud Thumb Screw.....	.06
98 Guide Bar Screw.....	.20	154 Head Dowel Pin.....	.03
99 Guide Bar Handle.....	.20	155 Weight Bar Pin.....	.03
100 Elevator Bar.....	.30	156 Cotter Pin.....	.02
101 Elevator Bar Screw.....	.05	160 Lifter Box Disc Screw.....	.05

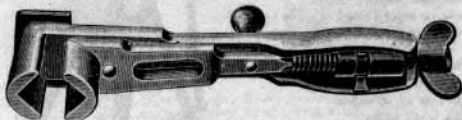
PARTS OF STAR POWER HACK SAW, No. 89, AND PRICES



No.		No.		
0	Clutch Collar.....	\$0.40	25. Tool Tray.....	\$0.30
1	Elevator Stop.....	.25	26. Rest Standard.....	.30
2	Frame Clamp.....	.15	27. Wood Pitman.....	.30
3	Long Guide.....	.90	28. Small Pitman Bolt.....	.15
4	Loose Vise Jaw.....	.75	29. Large Pitman Bolt.....	.25
5	Lift Handle.....	.30	30. Dog.....	.08
6	Gauge Clamp.....	.25	31. Malleable Thumb Screw.....	.08
7	Short Guide.....	.60	32. Guide Screw and Nut.....	.15
8	Vise Wrench.....	.25	33. Gauge Clamp Nut.....	.15
9	Short Yoke.....	.30	34. Long Stud.....	.15
10	Long Yoke.....	.40	35. Short Stud Nut.....	.08
11	Arm.....	2.25	36. Short Stud.....	.15
12	Standard.....	1.90	37. Short Strap.....	.08
13	Rest Yoke.....	.75	38. Elevator Bar.....	.25
14	Clutch Lever.....	.75	39. Long Strap.....	.15
15	Vise Jaw.....	.45	40. Gauge Rod.....	.40
16	Rest Base.....	.90	41. Arbor.....	.30
17	Frame.....	3.40	42. Weight Rod.....	.90
18	Face Plate.....	.75	43. Large Bearing Rod.....	.45
19	Sliding Frame.....	.50	44. Small Bearing Rod.....	.40
20	Pulley.....	2.00	45. Vise Screw.....	.45
21	Hand Wheel.....	4.50	46. Clutch Collar Spring.....	.08
22	Bed.....	5.00	47. Clutch Lever Handle.....	.15
23	Leg.....	2.25	48. Pulley Bolt and Handle.....	.30
24	Weight.....	.90	49. Hand Wheel Bolt and Handle.....	.40

BAR REST

To be used in connection with power hack saw to support long pieces to be cut.
Adjustable to various heights, ranging from 24 to 31 inches.
Weight, 12 lbs.
Price, \$2.00.

ADJUSTABLE WAGON WRENCH

Malleable iron, rough nickeled.
Tenacious grip; may be used as a hand vise.
Knob on the back to be used as a crank in whirling nut on or off.
Weight, per dozen, 13 lbs
Price, per dozen, \$4.00.
Packed $\frac{1}{2}$ dozen in a pasteboard box.

FAMILY GRINDSTONE**No. 2**

Adapted especially for household purposes. Iron castings, japanned black, ornamented with red stripes; stone of suitable grain and hung on a **STEEL ARBOR**.

Device for tightening the belt.

Stone runs in a trough and superfluous water is wiped from it by sponges in either end of the trough.

Foot power, with speeded drive and heavy drive wheel.

Dimensions of stone, 8x1 $\frac{1}{2}$ inches.

Height over all, 33 inches.

Weight, boxed, 66 lbs.

Weight, net, 43 lbs.

Price, each, \$5.25.

Knocked down and packed 1 in a case.

**GRINDSTONE****No. 3**

Iron castings, japanned black, with red stripes; selected stone of suitable grain, hung on a **STEEL ARBOR**.

Foot or hand driven, with weighted crank to steady the motion and to help maintain velocity.

Superfluous water wiped from stone by a sponge in either end of the trough.

Rest attachment against which to hold tools while sharpening them.

Dimensions of stone, 14x1 $\frac{1}{2}$ inches.

Height over all, 38 inches.

Weight, boxed, 85 lbs.

Weight, net, 56 lbs.

Price, each, \$6.00.

Knocked down and packed 1 in a wooden box.





GRINDSTONE

No. 4

Similar to Grindstone No. 3, shown next preceding, except that the stand has four legs to add to stability and, when desired, a 4x2 inch pulley for power drive is furnished.

Dimensions of stone, 14x1 $\frac{1}{2}$ inches.

Height over all, 39 inches.

Weight, boxed, 97 lbs.

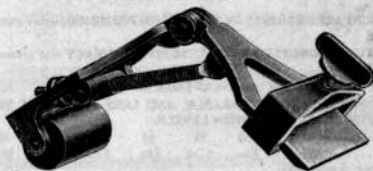
Weight, net, 85 lbs.

Price, without pulley, \$6.50.

Price of pulley, \$0.65.

Knocked down and packed 1 in a wooden box.

CHISEL GRINDER



Cast iron, rough nickeled.

Adjustable to hold chisels, plane irons, etc., against grindstone at different bevels and enabling the user to obtain the **SAME BEVEL THE FULL WIDTH OF THE TOOL BEING GROUND.**

Roller bearing against grindstone.

Weight, per dozen, 16 lbs.

Price, per dozen, \$12.00.

Packed $\frac{1}{2}$ dozen in a pasteboard box.

PATENT IRON LEVELS



No. 20



Nos. 21 and 22



Nos. 23, 24, 25, and 26

LEVEL SURFACES CAREFULLY TRUED AND POLISHED; other parts enameled black.

SPIRIT TUBES INSERTED WITH UTMOST ACCURACY and protected with a nickeled plate.

Openwork construction with the **ADVANTAGE OF LIGHTNESS.**

MORE COMPACT, MORE DURABLE, AND LESS EXPENSIVE THAN THE BETTER CLASS OF WOODEN LEVELS.

Nos.	20	21	22	23	24	25	26
Length	4 in.	4 in.	5 in.	6 in.	12 in.	18 in.	24 in.
Weight, per dozen (with pasteboard boxes)	8½ lbs.	4 lbs.	4½ lbs.	11 lbs.	26 lbs.	37 lbs.	55 lbs.
Price, per dozen	\$10.40	\$7.00	\$8.25	\$12.00	\$18.00	\$21.50	\$24.75

No. 20 is a right-angle triangle level.

Nos. 21 and 22 are bench levels.

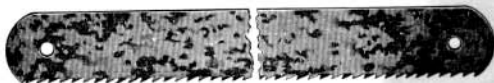
Other numbers are double plumb levels.

No. 20 packed 2 in a pasteboard box.

Other numbers packed 1 in a pasteboard box.

Ground glasses furnished at additional cost of \$0.50 per glass.

ECONOMY BUTCHER SAW BLADE



Hardened and tempered evenly throughout.

ONE BLADE COSTS LESS THAN THE FILING OF AN ORDINARY BLADE AND DOES THREE OR FOUR TIMES THE WORK BEFORE BECOMING DULL AND CUTS FASTER.

Convenience in always having sharp blades at hand.

SAWS FURNISHED, UNLESS OTHERWISE SPECIFIED, $\frac{1}{2}$ inch wide with 9 $\frac{1}{2}$ teeth to the inch.

SAWS FURNISHED ONLY WHEN SO ORDERED, $\frac{1}{2}$ inch wide with 14 teeth to the inch.

Length.....	14 in.	16 in.	18 in.	20 in.	22 in.	24 in.	26 in.
Weight, per gross, $\frac{1}{2}$ in. wide	9 lbs.	10 lbs.	11 lbs.	12 lbs.	13 lbs.	14 lbs.	15 lbs.
Weight, per gross, $\frac{3}{4}$ in. wide	6 lbs.	7 lbs.	8 lbs.	9 lbs.	10 lbs.	11 lbs.	
Price, per dozen.....	\$1.45	\$1.45	\$1.60	\$1.60	\$1.75	\$1.75	\$1.95
Price, per gross.....	\$17.00	\$17.00	\$19.00	\$19.00	\$21.00	\$21.00	\$23.00
Packed $\frac{1}{2}$ gross in a pasteboard box.							

STAR BUTCHER SAW FRAMES



Flat crucible steel backs. Beech handles, with polished edges.

Capacity.....	14 in.	16 in.	18 in.	20 in.	22 in.	24 in.	26 in.
Weight, per doz....	25 lbs.	27 $\frac{1}{2}$ lbs.	30 lbs.	32 $\frac{1}{2}$ lbs.	35 lbs.	37 $\frac{1}{2}$ lbs.	40 lbs.
Price, per dozen, without blades	\$14.50	\$15.75	\$17.00	\$18.25	\$19.50	\$20.75	\$22.00
Packed $\frac{1}{2}$ dozen in a pasteboard box.							

STAR KITCHEN SAW



Steel frame polished; beech handle.

Device for straining the blade.

Capacity, 14 inches.

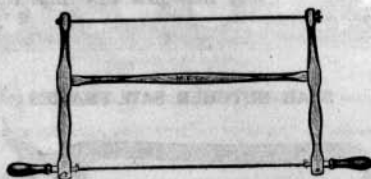
Weight, per dozen, 12½ lbs.

Price, per dozen (1 blade with each frame), **\$5.25.**

Packed ½ dozen in a pasteboard box.

Price of saw blades, per dozen, **\$1.45.**

TURNING SAWS



Birch wood; ebonized handles; steel tension rod.

Index on each handle to show how far to turn.

Friction regulated by screws.

Capacity.....	12 in.	14 in.	18 in.	20 in.	22 in.	24 in.
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Weight, per dozen (with pasteboard boxes).....	13 lbs.	17 lbs.	18½ lbs.	19½ lbs.	21 lbs.	22 lbs.
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Price, per dozen (including one blade with each frame).....	\$14.40	\$15.00	\$15.60	\$16.40	\$17.00	\$17.60
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Packed 1 in a pasteboard box.

	12 in.	14 in.	18 in.	20 in.	22 in.	24 in.
Price of saw blades, per doz.	\$1.90	\$2.10	\$2.60	\$3.00	\$3.25	\$3.65

SPRING STEEL FRET SAW FRAMES



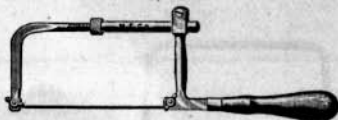
Best quality of spring steel, nickeled, cocobolo handles.

Interchangeable parts in case repairs should be needed.

Capacity.....	8 in.	10 in.	12 in.	14 in.	16 in.
Weight, per dozen (with pasteboard boxes).....	10 lbs.	11 lbs.	12½ lbs.	14 lbs.	14½ lbs.
Price, per dozen.....	\$15.20	\$16.60	\$18.00	\$19.40	\$20.80

Packed 1 in a pasteboard box.

JEWELERS' SAW



Forged, spring steel, nickeled, cocobolo handle.

Adjustable from 4 to 6 inches.

Weight, per dozen, 4½ lbs.

Price, per dozen, \$12.00.

Packed ½ dozen in a pasteboard box.

JEWELERS' SAW BLADES

Nos. 000 to 6, inclusive, per gross, \$1.25.

COPING SAW**No. 40**

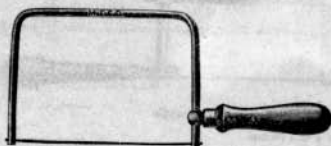
Hardwood handle, stained; steel wire, **NICKELED**.

Four inches deep; holds 6-inch saw blades with looped ends

Weight, per dozen, 4 lbs.

Price, per dozen, including 1 dozen blades with each frame, **\$4.25**.

Packed 1 dozen in a pasteboard box.

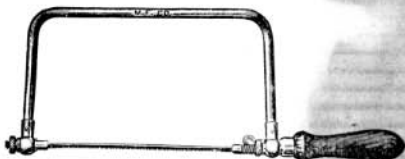
COPING SAW**No. 41**

The same as Copping Saw No. 40, shown next preceding, except that the handle is fastened to the frame with a ball-shaped clamp, adding to the firmness of the fastening and to the appearance of the tool

Weight, per dozen, 4 lbs.

Price, per dozen, including 1 dozen blades with each frame, **\$5.50**.

Packed 1 dozen in a pasteboard box.

COPING SAW, BALL-BEARING**No. 42**

Heavy steel wire, **NICKELED**; **COCOBOLO** handle.

Frame may be **LOCKED RIGID** or adjusted to **SWING FREE WITHOUT REFERENCE TO THE DIRECTION BLADE TAKES IN SAWING** and thus **OBVIATES THE NECESSITY OF STOPPING WORK TO CHANGE THE ANGLE OF THE BLADE.**

BALL BEARINGS under outer head **TO INSURE THE ALIGNMENT OF BLADE** when the back is swinging free.

Devices to lock the frame rigid **AT BOTH ENDS OF THE BLADE.**

Weight, per dozen, with pasteboard boxes, 6 lbs.

Price, per dozen, including 3 No. 60 blades with each frame, **\$14.00.**

Packed $\frac{1}{2}$ dozen in a pasteboard box.

COPING SAW BLADES**No. 50**

$6\frac{1}{2}$ inches; turned ends; for Frames Nos. 40 and 41.

Price, per gross, **\$1.20.**

No. 60

$6\frac{1}{2}$ inches; with pins in the ends.

May be used with any coping saw frame taking 6-inch blades.

Cut faster and straighter and last longer than the finer sort.

Price, per gross, **\$5.50.**

STAR FRET ★ SAW BLADES

Are now demanded in quantities from most remote countries.

They have no equals for speed, durability, uniformity, and smoothness of work.

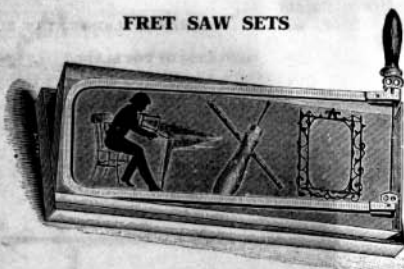
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Nos. 000 to 6	per gross, \$1.00
" 7	" " 1.10
" 8	" " 1.20
" 9	" " 1.30
" 10	" " 1.40
" 11	" " 1.50
" 12	" " 1.60

Put up 1 gross each size in a package and 10 gross in a box.

Also put up in grosses, assorted Nos. 1 to 6 and 10 gross in a box.

FRET SAW SETS



No. 1

Spring steel frame, 12x5 inches, rough nickered; japanned iron handle; patent clamps. Also furnished with each frame. 12 saw blades, 1 awl, 1 sheet of impression paper, and 3 sheets of designs.

Weight, per dozen (with pasteboard boxes), 10½ lbs.

Price, per dozen, \$10.00.

Packed 1 set in a pasteboard box.

No. 2

A superior spring steel frame, **POLISHED AND NICKED**, 12x5 inches; **ROSE-WOOD** handle; patent clamps.

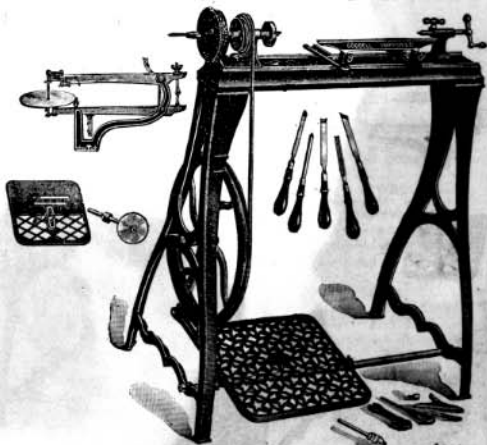
The same accessories as with No. 1 set.

Weight, per dozen (with pasteboard boxes), 13 lbs.

Price, per dozen, \$15.00.

Packed 1 set in a pasteboard box.

GOODSELL LATHE AND SAW



DRIVE WHEEL AND CONE PULLEY with two grooves to permit change of speed. Accurate **DRILL CHUCK** holding from 0 to $\frac{1}{4}$ inch in diameter round shank drills for boring in metal or wood.

LONG AND SHORT TOOL RESTS.

FIVE TURNING TOOLS, WRENCH AND DRILL POINTS, etc.

Lathe head with 2-inch **FACE PLATE** and **SPUR CENTER** and **SCREW CENTER** for turning cups.

EMERY WHEEL, $4\frac{1}{2} \times \frac{1}{4}$ inch.

DRILL SPINDLE WITH CHUCK for drill points for wood boring.

TAIL STOCK WITH SCREW FEED clamped at any point.

Swing of lathe, 5 inches; distance between centers, $13\frac{1}{4}$ inches; distance of bed from floor, 27 inches; length of bed, 24 inches.

Fret sawing attachment, quickly attachable or detachable, with nicked table, ash wood arms, dust blower, adjustable saw guide and lever, saw blades, designs, etc.

Circular saw attachment with saw table 6×7 inches, saw arbor, saw blade 3 inches in diameter, and straight edge guide.

The whole machine is thoroughly built and highly finished, polished parts being nickeled.

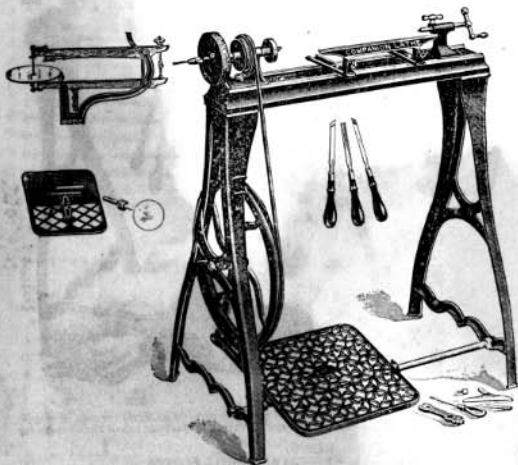
	Weight, Boxed	Weight, Net	Price
Lathe and lathe tools	71 lbs.	50 lbs.	\$13.00
Lathe and scroll saw attachment	78 lbs.	57 lbs.	15.00
Scroll saw attachment	16 lbs.	7 lbs.	2.00
Circular saw attachment		3 lbs.	1.25

Knocked down and packed 1 machine in a wooden box.

IN ORDERING STATE WHETHER EITHER OR BOTH OF THE SAW ATTACHMENTS ARE WANTED.

For prices of parts see page 113.

COMPANION LATHE AND SAW ATTACHMENTS



The same as the Goodell machine, shown next preceding, except that it is not so highly finished, nor is drill chuck or more than three turning tools furnished.

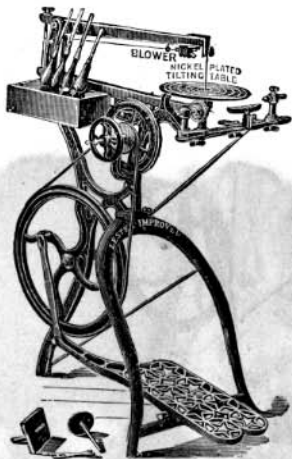
	Weight		Price
	Boxed	Net	
Lathe and lathe tools	71 lbs.	50 lbs.	\$9.00
Lathe and scroll saw attachment	78 lbs.	57 lbs.	11.00
Scroll saw attachment	16 lbs.	7 lbs.	2.00
Circular saw attachment		3 lbs.	1.25

Knocked down and packed 1 machine in a wooden box.

IN ORDERING STATE WHETHER EITHER OR BOTH OF THE SAW ATTACHMENTS ARE WANTED.

For prices of parts see page 113.

LESTER IMPROVED SAW AND LATHE



Made of iron and steel castings japanned black and ornamented with red and gilt; arms and pitman of ash wood.

HEAVY DRIVING WHEEL, weighing 13 lbs. and 15 inches in diameter.

TILTING SAW TABLE NICKELED.

Arms swinging clear, 18 inches.

AUTOMATIC DUST BLOWER.

ADJUSTABLE LEVER CLAMPS.

Capacity of cut, $\frac{1}{8}$ to $\frac{1}{2}$ inch stuff.

EMERY WHEEL.

Drill spindle and **SIX DRILL POINTS.**

LATHE ATTACHMENT with rest, steel centers, and three turning tools. Length of bed, 15 inches; distance between centers, 9 inches swing, 3 inches; length of slide rest, 4 inches.

CIRCULAR SAW ATTACHMENT with saw blade 3 inches in diameter and table 3x4½ inches.

Also furnished with each machine: 12 fret saw blades, 1 wrench, 1 screw driver, 3 sheets of designs and a box for the small tools.

Height, fret saw only, 35 inches.

Height, fret saw with lathe and circular saw attachment, 35 inches.

Weight, boxed, fret saw only, 81 lbs.

Weight, boxed, with lathe and circular saw attachment, 87 lbs.

Weight, net, fret saw only, 50 lbs.

Weight, net, with lathe and circular saw attachment, 56 lbs.

Price, fret saw only, **\$10.50.**

Price, with lathe and circular saw attachment, **\$13.00.**

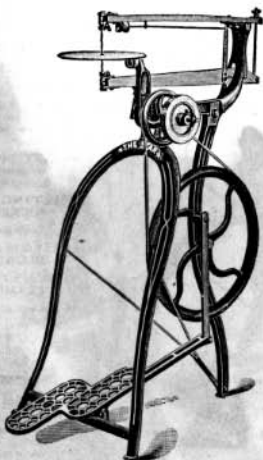
Knocked down and packed 1 machine in a wooden box.

Chuck to hold twist drills from 0 to $\frac{1}{2}$ inch in diameter for work in metal, with a tail stock and screw center extra, **\$2.50.**

Large table 6x7 inches for circular saw, with straight edge guide, **\$0.60.**

For prices of parts see page 114.

THE STAR FRET SAW



A well balanced, steady machine.

Iron castings japanned black and ornamented with red stripes; steel arbors.

HEAVY DRIVE WHEEL, giving power

ARMS HUNG IN THE MIDDLE OF THEIR SUPPORTING CASTING to give free and easy motion; **ADJUSTABLE**, so may be kept parallel.

Two balance wheels, **ONE EACH OF IRON AND EMERY**, adding steadiness to the motion.

ADJUSTABLE CLAMPS FOR THE EMERY WHEEL, capable of embracing other sizes of emery and buffing wheels, grindstones, etc.

NICKELED TILTING SAW TABLE.

AUTOMATIC DUST BLOWER.

Lever saw clamps and adjustable saw guide.

Depth of arms, 18 inches.

Whole height of machine, 37 inches.

Weight, boxed, 60 lbs.; net, 40 lbs.

Price, **\$6.50.**

Knocked down and packed 1 in a wooden box.

For prices of parts see page 115.

THE NEW ROGERS FRET SAW



Iron castings, japanned black with red and gilt stripes; steel arbors; arms and pitman of best selected ash wood.

BEARINGS TO THE ARMS CAREFULLY ADJUSTED.

AUTOMATIC DUST BLOWER.

JOINTED STRETCHER ROD, permitting free action of arms.

ADJUSTABLE LEVER SAW CLAMPS WITH HINGED JAW to overcome a disagreeable raking overthrow of the saw blades and to **PREVENT BREAKAGE OF BLADES.**

DRILLING ATTACHMENT on the right hand side of balance wheel.

Parts secured to each other by nicely fitting screws and bolts.

Each machine is **SET UP** and **RUN** and **CAREFULLY INSPECTED** before leaving our works.

Also furnished with each machine: 12 saw blades, 1 wrench, 3 sheets of designs, 1 awl, impression paper, and 3 drill points.

Height, 35 inches.

Weight, boxed, 45 lbs.; net, 28 lbs.

No. 1, with japanned tilting table and iron balance wheel, \$4.50.

No. 2, with nickel-plated tilting table and emery balance wheel, \$5.25.

Knocked down and packed 1 in a wooden box.

For prices of parts see page 114.



CRICKET SAW

Of the same general plan as other fret saw machines, shown preceding, except that it is made of lighter castings.

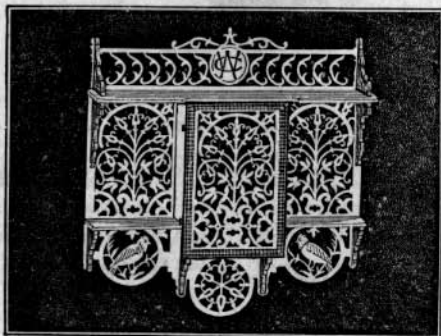
Height, 33 inches.

Weight, boxed, 35 lbs.; net, 17 lbs.

Knocked down and packed 1 in a wooden box.

Price, \$3.50.

DESIGNS FOR FRET SAWING



No. 215 Wall Cabinet.

We are publishers of Bowman's and Russell's designs, comprising a large variety Catalogues, showing designs and mouldings in miniature, will be furnished on application.

PRICE LIST OF FANCY WOODS

NAME OF WOODS.		PLAINED TO THE FOLLOWING THICKNESS.		
		$\frac{1}{2}$ inch.	$\frac{3}{8}$ inch.	$\frac{1}{4}$ inch.
Black Walnut	per square foot	\$0.11	\$0.13	\$0.14
White Holly	" " "	.12	.14	.16
Poplar	" " "	.04	.05	.06
Plain White Maple	" " "	.06	.08	.09
Oak	" " "	.09	.10	.12
Cherry	" " "	.09	.11	.13
Mahogany	" " "	.12	.14	.16
Bird's-eye Maple	" " "	.12	.15	.16
Cocobolo	" " "	.16	.19	.22
Rosewood	" " "	.24	.27	.34
Amaranth	" " "	.16	.20	.25
Satin Wood	" " "	.24	.27	.30
Tulip	" " "	.40	.46	.57
Ebony	" " "	.50	.57	.68

PRICES OF GOODELL & COMPANION LATHE PARTS

NAME OF PARTS.	Companion.	Goodell.
Lathe Bed	\$0.75	\$0.75
Legs	.75	.75
Treadles	.50	.50
Treadle Rod	.15	.20
Treadle Caps	.05	.05
Driving Wheel	1.25	1.25
Driving Wheel Bolt	.15	.15
Emery Wheel	.40	.40
Head Block	.20	.25
Head Block Spindle and Face Plate	.25	.25
Head Block Spindle Cone Pulley	.15	.20
Tail Block	.20	.25
Tail Block Spindle and Crank	.20	.30
Tail Block Spindle Binder	.10	.15
Long Rest	.20	.30
Short Rest	.10	.15
Rest Sockets	.15	.15
Spur Center	.20	.20
Screw Center for Cups	.15	.15
Star Chucks	...	2.00
Saw Attachment Arm Casting	.50	.50
Arms	.30	.30
Table	.60	.60
Stretcher	.15	.15
Clamps	.25	.25
Bolts	.03	.05
Turning Tools	(5)	1.25
Turning Tools	(3)	.75
Arm Bolts and Nuts	.06	.06
Belt	.15	.15
Drills	per dozen	.50
Pitman, Long	.10	.10
Pitman, Short	.05	.05
Pitman Screws	.05	.05
Screw Driver	.25	.25
Blower	.25	.25
Table Bolt	.03	.03
Wrench	.06	.06
Saw Guide (New Pattern)	.10	.10
Arm Spring	.05	.05
Winged Drill Nut	.05	.05

LESTER SAW REPAIRS

Arms, per pair.....	\$0.30	Lathe Spur Center.....	\$0.20
Arm Bolts and Nuts.....	.06	Lower Arm Guide.....	.05
Arm Spring.....	.05	Locking Bolts.....	.03
Balance Wheel.....	.50	Pitman, Long.....	.10
Belt.....	.15	Pitman, Short.....	.05
Brace.....	.10	Pulley.....	.10
Circular Saw.....	.25	Pitman Screws.....	.05
Circular Saw Arbor.....	.15	Rest Socket Bolt.....	.05
Circular Saw Table.....	.12	Saw Guide.....	.10
Clamps, per pair.....	.25	Screw Driver.....	.25
Drills, per dozen.....	.50	Scroll Saw Table, Nickel.....	.65
Drill Nut.....	.05	Scroll Saw Table Guide.....	.20
Drive Wheel Arbor.....	.15	Spindle and Crank.....	.20
Drive Wheel.....	1.25	Stretcher.....	.15
Emery Wheel.....	.40	Stove Bolts, each.....	.02
Frame.....	1.50	Treadle Caps, per pair.....	.10
Front Leg.....	.85	Treadle.....	.50
Lathe Bed.....	.35	Tool Box.....	.12
Lathe Head Stock.....	.25	Blower.....	.25
Lathe Tail Stock.....	.16	Table Bolts.....	.03
Lathe Rest.....	.05	Thumb Nute.....	.05
Lathe Rest Socket.....	.10	Thumb Screws.....	.05
Lathe Pulley.....	.10	Turning Tools, per set (3).....	.75
Lathe Tail Center.....	.10	Wrench.....	.06

ROGERS SAW REPAIRS

Arm Bolt.....	\$0.02	Drive Wheel.....	\$0.50
Arm Casting.....	.40	Front Leg.....	.60
Arms, per pair.....	.30	Headless Screws.....	.02
Arm Spring.....	.05	Locking Bolt and Nut.....	.05
Back Leg.....	.30	Pitman.....	.05
Balance Wheel, Iron.....	.25	Pitman Screw.....	.05
Balance Wheel, Emery.....	.40	Pulley.....	.10
Belt.....	.15	Saw Guide.....	.10
Brace.....	.15	Stretcher.....	.15
Blower.....	.20	Stove Bolt.....	.02
Crank and Spindle.....	.20	Table, Nickel Plated.....	.60
Crank Screw.....	.05	Table, Japanned.....	.40
Clamps, per pair.....	.25	Table Bolt.....	.03
Drill Nut.....	.05	Treadle.....	.25
Drive Wheel Bolt and Nut.....	.10	Wrench.....	.06

PARTS OF STAR FRET SAW AND PRICES

Arm Casting.....	\$0.25	Drive Wheel.....	\$1.25
Arm Casting Adjustment, upper arm.....	.15	Drive Pulley.....	.10
Arm Casting Adjustment, lower arm.....	.15	Drive Wheel Arbor, complete....	.15
Arms, per pair.....	.30	Emery Wheel.....	.40
Arm Pin.....	.02	Emery Wheel Arbor, complete....	.10
Arm Bolt, 1x1 $\frac{1}{4}$ inch Round Head Car, Plated.....	.05	Front Leg.....	.75
Back Leg.....	.40	Locking Bolt.....	.05
Frame, to which Arm Casting is attached.....	.30	Pitman, Short.....	.05
Balance Wheel.....	.35	Pitman Yoke Castings.....	.10
Brace.....	.15	Pitman Bolt, R. H. Stove $\frac{1}{4}$ x $\frac{1}{4}$ inch.....	.02
Brace Bolt, R. H. Stove $\frac{1}{4}$ x $\frac{1}{4}$ inch.....	.02	Pitman, Long.....	.10
Blower, complete.....	.25	Saw Guide.....	.10
Blower Lever.....	.05	Saw Guide Screw, $\frac{1}{4}$ inch No. 8 Machine Screw.....	.02
Belt.....	.15	Saw Table, Plated.....	.60
Crank and Drill Spindle.....	.25	Saw Table Bolt, 1x $\frac{1}{2}$ inch R. H. Carriage.....	.02
Crank Screw.....	.05	Stretcher Rod, complete.....	.15
Clamps, upper and lower, complete.....	.25	Treadle.....	.25
Clamp Bolts, 1 $\frac{1}{4}$ x $\frac{1}{4}$ inch R. H. Stove.....	.02	Treadle Caps, per pair.....	.10
Drill Spindle, Wing Nut.....	.05	Treadle Cap Screws, $\frac{1}{4}$ x $\frac{1}{4}$ inch Blind Screws.....	.02
Drills, per dozen.....	.50	Treadle Bolt, 1 $\frac{1}{4}$ x $\frac{3}{4}$ inch R. H. Stove.....	.02

CRISPIN'S AWL



Hollow, ebonized handle.

Contains, on a spool, 50 feet of best waxed shoe thread, 3 awls, and 5 needles of various shapes and sizes.

Length, 5 inches.

Weight, per dozen, 2 lbs.

Price, per dozen, \$3.00.

Packed 1 dozen in a pasteboard box.

TOOL HOLDERS



For illustrations of tools see page 117 and for general description see page 118.

TOOLS FOR TOOL HOLDER

No. 1



TOOLS FOR TOOL HOLDER

No. 4



TOOLS FOR TOOL HOLDERS

Nos. 5 and 500



TOOL HOLDERS

Nos. 1, 4, 5, and 6

For illustrations of handles and tools see pages 116 and 117.

BEAUTIFULLY POLISHED AND FINISHED COCOBOLO; HEAVILY NICK-ELED shell and jaws.

Hollow handle, containing tools, and closed with a screw cap.

Jaws holding **WITH VISE-LIKE GRIP** tools, as shown in preceding illustrations, also a variety of other kinds of shanks.

Socket and shell threads carefully cut so as **TO MESH PERFECTLY AND PREVENT SHELL FROM WORKING LOOSE AND ALLOWING TOOLS TO DIS-ENGAGE THEMSELVES FROM JAWS.**

Tools made from best steel and **CAREFULLY TEMPERED AND FINISHED AND HONED TO A FINE CUTTING EDGE.**

Nos.	1	4	5	6
Length of handle.....	6 in.	6½ in.	7½ in.	4½ in.
Number of tools.....	20	10	10	12
Length of tools.....	1½ in.	2½ in.	4 in.	1½ in.
Weight, per dozen (with pasteboard boxes).....	5 lbs.	7 lbs.	11 lbs.	5 lbs.
Price, per dozen.....	\$14.75	\$14.75	\$19.00	\$11.00

Nos. 1 and 6 packed ½ dozen in a pasteboard box.

Nos. 4 and 5 packed 1 in a pasteboard box.

TOOL HOLDER

No. 500



The same as Tool Holder No. 5, described above, except that the handle is birch stained to imitate cocobolo and that the tools are polished without blue finish. The handle cap has no inserted metal plate.

Weight, per dozen (with pasteboard boxes), 11 lbs.

Price, per dozen, **\$14.40.**

Packed ½ dozen in a pasteboard box.

SPOKE SHAVE**No. 1**

Metal parts **POLISHED AND NICKED**; **COCOBOLO** handles.

Circular shape permitting the tool to work in small circles.

Knife so pitched that it cuts instead of scraping the grain of the wood.

Either handle removable for working in cramped quarters.

Length, 10 inches.

Weight, per dozen, 5½ lbs.

Price, per dozen, \$12.00.

Packed ½ dozen in a pasteboard box.

FOUR FACED SPOKE SHAVE**No. 2**

COCOBOLO handles; metal parts **POLISHED AND NICKED**.

Quickly **ADJUSTABLE THROAT REGULATOR**, which may be turned about to present **FOUR DIFFERENT FACES** to the knife; **ONE FLAT, TWO OVAL OR CONVEX, AND ONE CONCAVE**. Wide or narrow throat may be had.

Knife adjustable with set screws.

Either handle removable for working in narrow places.

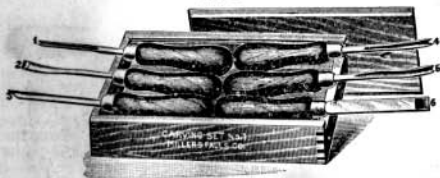
Length of blade, 2 inches.

Length of whole tool, 11 inches.

Weight, per dozen, 7 lbs.

Price, per dozen, \$16.00.

Packed ½ dozen in a pasteboard box.

CARVING TOOL SET**No. 1**

BLADES FORGED FROM STEEL OF THE HIGHEST QUALITY; FERRULES POLISHED AND NICKED; HANDLES COCOBOLO.

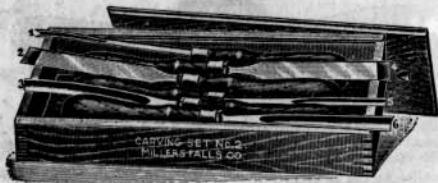
Using numbers shown in illustration above, tools are as follows: No. 1, U TOOL; No. 2, SCRAPER; No. 3, BEVELED CHISEL; No. 4, V TOOL; No. 5, CURVED GOUGE; No. 6, STRAIGHT CHISEL; all sharpened for use.

Length of tools, 5½ inches.

Weight, per dozen (with wooden and pasteboard boxes), 7½ lbs.

Price, per dozen, \$16.00.

Packed 1 set in a wooden box, which is inclosed in a pasteboard carton.

CARVING TOOL SET**No. 2**

The same material and finish as in Carving Tool Set No. 1, shown next preceding.

Using numbers shown in illustration above, tools are as follows: No. 1, V TOOL; No. 2, BEVELED CHISEL; No. 3, CURVED GOUGE; No. 4, STRAIGHT CHISEL; No. 5, U TOOL; No. 6, STRAIGHT GOUGE.

Length of tools, 8½ inches.

Weight, per dozen (with wooden and pasteboard boxes), 11 lbs.

Price, per dozen, \$23.50.

Packed 1 set in a wooden box, which is inclosed in a pasteboard carton.

CARVING TOOL SET No. 3



Blades FORGED FROM STEEL OF THE HIGHEST QUALITY; ferrules POLISHED AND NICKED; COCOBOLO handles of a serviceable shape. Twelve carving tools and one matting tool, making a comprehensive set of shapes and especially adapted for manual training school use. Hinged boxes, 9½x8½ inches in size, when closed, and nicely finished; provided with clips to hold each tool in its place. Length of tools, except matting tool, average 8½ inches. Weight, per set, with wooden and pasteboard boxes, 3½ lbs. Price, per set, \$6.50. Packed 1 set in a wooden box, which is inclosed in a pasteboard carton.

MILLERS FALLS GLASS CUTTERS

No. 0



Cocobolo handle; loose iron head, as upon the ordinary diamond cutter; steel cutter wheel, carefully tempered and ground with precision.

Weight, per gross, 10½ lbs.

Price, per gross, \$19.00.

Packed 1 dozen in a pasteboard box.

No. 1



All iron, polished; steel cutter wheel, scientifically tempered and ground.

Weight, per gross, 12½ lbs.

Price, per gross, \$16.00.

Packed 1 dozen in a pasteboard box.

No. 5



Iron handle; cutter head polished; steel cutter wheel of the best quality.

Extra heavy for cutting plate glass.

Weight, per gross, 16 lbs.

Price, per gross, \$10.50.

Packed 1 dozen in a pasteboard box.

No. 7



Light, malleable iron handle; cutter head polished; steel cutter wheel, carefully tempered and ground.

Weight, per gross, 9 lbs.

Price, per gross, \$9.60.

Packed 1 dozen in a pasteboard box.

MILLERS FALLS GLASS CUTTERS—(Continued)

No. 13



Iron handle with putty knife; steel cutter wheel of excellent cutting qualities.

Weight, per gross, 12½ lbs.

Price, per gross, \$9.25.

Packed 1 dozen in a pasteboard box.

No. 15



Iron handle, center part japanned; a polished cutter head on each end with one steel cutter wheel in each, scientifically tempered and ground.

Weight, per gross, 14 lbs.

Price, per gross, \$16.00.

Packed 1 dozen in a pasteboard box.

No. 25



COCOBOLO handle; cutter head **POLISHED AND NICKED.**

MAGAZINE in cutter head **CONTAINING EXTRA CUTTER WHEELS AND AXLES.**

New wheels easily inserted at the working point.

Weight, per dozen, 1½ lbs.

Price, per dozen, including 6 cutter wheels and 4 axles, \$9.00.

Packed 1 in a pasteboard box and 1 dozen boxes within a larger pasteboard box.

MILLERS FALLS GLASS CUTTERS—(Continued)

No. 30



COCOBOLO handle; metal parts, excepting cutter wheels, POLISHED.

REVOLVING TURRET HEAD, loosened for turning and clamped fast by a thumb screw, and containing 4 cutter wheels, as well as 4 milled notches to be used as breakers.

Weight, per dozen, $\frac{1}{2}$ lbs.

Price, per dozen, \$3.00.

Packed $\frac{1}{2}$ dozen in a pasteboard box.

No. 31



COCOBOLO handle; metal parts, except cutter wheels, POLISHED AND NICK-ELED.

REVOLVING TURRET HEAD, shifted and clamped with a knurled thumb screw, and equipped with breakers.

One cutter wheel affixed to the head and extra wheels and axles in a MAGAZINE collar, which screws upon the handle.

New wheels inserted into the turret head in a moment's time.

Weight, per dozen, 15 oz.

Price, per dozen, including 12 cutter wheels and 3 axles with each tool, \$8.00.

Packed $\frac{1}{2}$ dozen in a pasteboard box.

MONITOR GLASS CUTTER

No. 100



Polished and highly finished **COCOBOLO** handle; head of **PRESSED STEEL**; **REVOLVING TURRET** of steel; both turret and head highly **POLISHED AND NICKELED**; **CUTTER WHEELS** OF BEST QUALITY **STEEL**, **SCIENTIFICALLY HARDENED AND CAREFULLY TESTED**.

Turret shifted by loosening a knurled **THUMB** screw, which also clamps it fast. This screw is **SLOTTED** so it may be operated by a **SCREW DRIVER** if desired.

Turret plate of thin stock, **PERMITTING THE CUTTER WHEEL TO BE ORERATED CLOSE TO CUTTING GUIDE**.

SEVEN CUTTER WHEELS affixed to the turret; new ones inserted quickly and with ease; axes controlled by a device to prevent their falling out of place while new wheels are being inserted.

Weight, per dozen, 14 oz.

Price, per dozen, **\$4.00**.

Packed 1 dozen in a pasteboard box.

MONITOR GLASS CUTTER

No. 200



The same as Glass Cutter No. 100, shown next preceding, except that the handle end is provided with a **MAGAZINE** with screw cap, both of brass, nickel plated. Magazine **CONTAINS SIX EXTRA WHEELS** and the metal end may be used as a breaker.

Weight, per dozen, 1 lb.

Price, per dozen, including 13 wheels and 7 axes with each tool, **\$7.25**.

Packed 1 dozen in a pasteboard box.

THE GEM SOLDERING SET**No. 1**

A household implement.

Comprises one **BAR OF SOLDER**, one **BOX OF RESIN**, a **SCRAPER**, and a **SOLDERING COPPER**.

Copper is of **SUFFICIENT SIZE TO RETAIN HEAT**.

May be used as an ordinary soldering copper or, when attached to a gas burner, the gas passes **THROUGH A HOLLOW TUBE WITHIN THE LENGTH OF THE HANDLE** and is ignited at emission holes immediately beneath the copper.

Weight, per dozen sets (with wooden boxes), 12½ lbs.

Price, per dozen sets, \$10.50.

Packed 1 set in a wooden box, which is inclosed in a pasteboard carton.

THE GEM SOLDERING SET**No. 2**

The same as Soldering Set No. 1, shown next preceding, except that it is not adapted to a gas burner and is not quite so highly finished.

Weight, per dozen sets (with wooden boxes), 11½ lbs.

Price, per dozen sets, \$7.00.

Packed 1 set in a wooden box.

MILLERS FALLS BENCH HOOK

No. 55

NICKELED STEEL hook; inner surface of cup-shaped socket painted red and remainder of tool gray.

Hook has four faces and can be turned around readily and set at any height by means of a flat spring at side and coil spring beneath hook.

Upper part of socket 2 inches, and lower part 1 inch, in diameter.

Weight, per dozen, 7 lbs.

Price, per dozen, \$6.00.

Packed $\frac{1}{2}$ dozen in a pasteboard box.



MILLERS FALLS BENCH HOOK

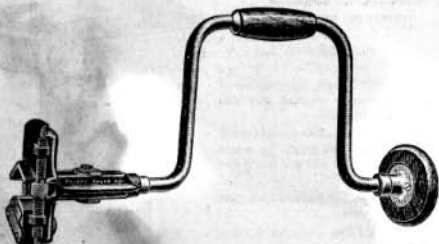
No. 56

Same as No. 55, shown above, except that hook is adjusted and faced by means of a screw in its center

Weight, per dozen, 8 lbs.

Price, per dozen, \$6.00.

Packed $\frac{1}{2}$ dozen in a pasteboard box.

ADJUSTABLE HOLLOW AUGER**No. 1**

A 14-inch sweep bit brace of our No. 40 pattern, with **BALL BEARING HEAD**, especially fitted to the auger, causing the latter always to work true.

Head castings of the auger made of iron, enameled black and red; steel adjusting screw; knife carefully tempered and sharpened.

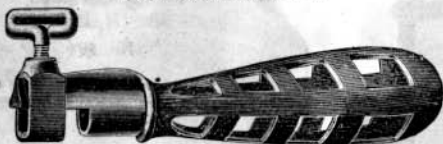
Adjustable to cut tenons from $\frac{1}{4}$ to $1\frac{1}{2}$ inches, with a graduated index.

Stop gauge to regulate the length of tenons.

Weight, per dozen (with pasteboard boxes), 46 lbs.

Price, per dozen, **\$58.00.**

Packed $\frac{1}{2}$ dozen in a pasteboard box.

UNIVERSAL HANDLE

Malleable iron, japanned.

Holds, perfectly, files with tangs of all sizes and shapes from a 14-inch mill file to the smallest size in use, also a variety of shanks of different shapes and sizes not exceeding $\frac{1}{2}$ -inch square or flat.

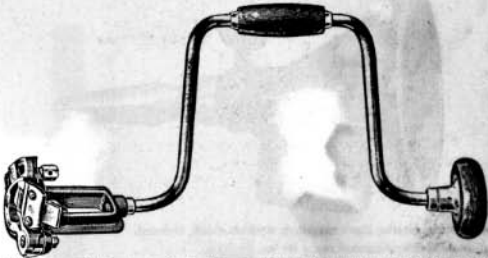
Serves many of the purposes of a hand vise.

Length, $5\frac{1}{2}$ inches.

Weight, per dozen, $4\frac{1}{2}$ lbs.

Price, per dozen, **\$1.50.**

Packed $\frac{1}{2}$ dozen in a pasteboard box.

ADJUSTABLE HOLLOW AUGER**No. 2**

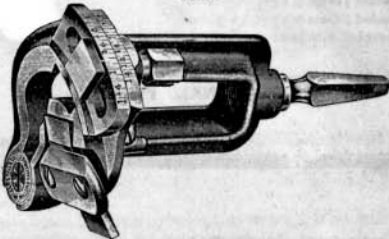
The same as Hollow Auger No. 1, shown next preceding, except as to shape and the manner of adjusting for different sizes of tenons.

For details of mechanism see illustration next following.

Weight, per dozen (with pasteboard boxes), 43 lbs.

Price, per dozen, \$58.00.

Packed $\frac{1}{2}$ dozen in a pasteboard box.

ADJUSTABLE HOLLOW AUGER**No. 3**

The same as Hollow Auger No. 2, shown next preceding, except that, instead of a bit brace sweep, a bit stock shank is furnished to fit into the chuck of a bit brace.

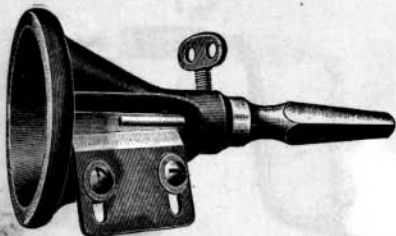
Weight, per dozen (with pasteboard boxes), 22 $\frac{1}{2}$ lbs.

Price, per dozen, \$46.00.

Packed 1 in a pasteboard box.

Note:—Furnished with $\frac{1}{4}$ -inch round shank, when so ordered, without extra charge.

SPOKE TRIMMERS



Iron casting, exterior black enameled; steel bit shank, nickeled.
Adjustable knife, sharpened ready for use.

ADJUSTABLE STOP GAUGE clamped with a thumb screw.

Nos.	Capacity.	Weight per doz.	Price per doz.
101	Will cut round stock up to 1½ inches.	9½ lbs.	\$7.20
" "	" " square " " 1½ "		
102	" " round " " 3 "	20 lbs.	\$11.00
" "	" " square " " 2½ "		

No. 101 will cut square stock up to 1½ inches and No. 102 up to 3 inches, if the corners of the wood are first trimmed.

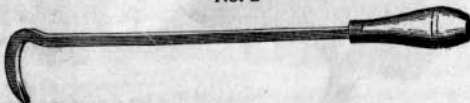
No. 101 packed ½ dozen in a pasteboard box.

No. 102 packed ½ dozen in a pasteboard box.

Note:—Furnished with ½-inch round shank, when so ordered, without extra charge.

PELICAN NAIL PULLER

No. 2



Best tempered steel and hardwood handle.

The claw is driven under nail head by the blow of a hammer upon the heel of the tool.

A rapid working device at small cost.

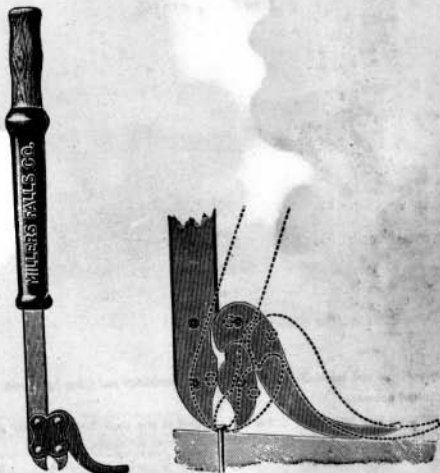
Weight, per dozen, 12½ lbs.

Price, per dozen, \$5.50.

Packed 1 in a paper package.

MILLERS FALLS NAIL PULLER

No. 3



Hardwood handle with **STEEL RINGS INSERTED IN EACH END TO PREVENT SPLITTING.**

Iron barrel, japanned black.

Polished steel plunger.

Steel jaws, operated **WITHOUT SPRINGS, OPENING AND SHUTTING AUTOMATICALLY** owing to their peculiar relation to the foot or heel. Nails partly

drawn from the wood may be gripped by these jaws at any point without slipping.

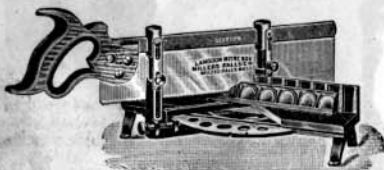
Weight, per dozen (with pasteboard boxes), 48 lbs.

Price, per dozen, **\$12.00.**

Packed 1 in a pasteboard box and 2 dozen in a case.

LANGDON MITRE BOXES

Nos. 15½ and 16½



Easily portable and especially adapted to cutting mouldings and other light work.
Guaranteed accurate.

Saw supports may be quickly swung and clamped at any angle from 45° to 90° either right or left, notches being cut in the base plate at the angles most used.

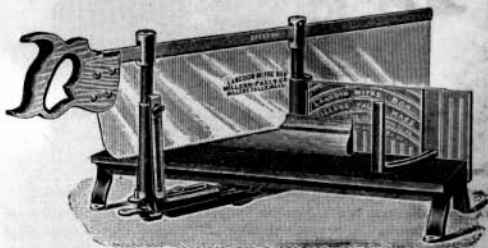
Nos.	15½	16½
Size	C	B
Dimensions of saw	16 x 2½ in.	16 x 2 in.
Capacity at right angles	4½ in.	4½ in.
Capacity at mitre	3 in.	3 in.
Weight, boxed	14 lbs.	11 lbs.
Weight, net	8 lbs.	7 lbs.
Price	\$6.75	\$5.50

Prices of boxes without saws: Size C, \$4.50; Size B, \$3.60.

N. B.—Boxes are guaranteed only when supplied with back saws fitted to the boxes by ourselves.

LANGDON MITRE BOXES

Nos. 15 and 16, Size 3.



Especially for wide and deep material.

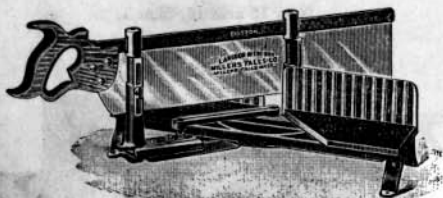
Saw supports may be swung and clamped at any angle from 45° to 90°, the circular arms, shown in the illustration, being used to extend the range beyond that just mentioned. Notches are cut in the base plate at the angles most used.

Nos.	15	16
Dimensions of saw	28 x 6 in.	30 x 6 in.
Capacity at right angles	12½ in.	12½ in.
Capacity at mitre	8½ in.	8½ in.
Weight, boxed	50 lbs.	53 lbs.
Weight, net	39 lbs.	40 lbs.
Price	\$24.00	\$24.75

Price, without saw, \$20.00.

N. B.—Boxes are guaranteed only when supplied with back saws fitted to the boxes by ourselves.

NEW LANGDON MITRE BOXES



Guaranteed accurate when supplied with saws fitted by ourselves.

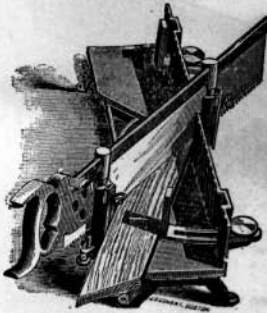
Iron castings, bronze enameled; bright parts nicked; bottom boards sanded.

Equipped with depth gauges, front post extensible for stuff of varying widths, and a gib (the casting directly beneath the saw) made to support the work to the end of the cut.

Saw supports quickly swung and clamped at any angle from 45° to 90° either to the right or the left, the angles most used being determined by notches cut into the base plate.

No.	Size.	Dimensions of Saw. Inches.	Capacity, at Right Angles. Inches.	Capacity, at Mitre. Inches.	Weight Boxed. Pounds.	Weight Net. Pounds.	Price.
17	1	18x4	6½	4½	24	14	\$9.60
18	1	20x4	6½	4½	25	14	10.20
19	1	22x4	6½	4½	26	14½	10.80
20	1	24x4	6½	4½	26½	14½	11.40
21	1	26x4	6½	4½	27	15	12.00
22	2	22x4	9½	6½	27½	15½	12.00
23	2	24x4	9½	6½	27½	16	12.60
24	2	26x4	9½	6½	28	16½	13.20
25	2½	28x5	9½	6½	30½	18	14.75
BOXES WITHOUT SAWS							
	1		6½	4½	20½	12½	\$8.60
	2		9½	6½	22	14	10.00
	2½		9½	6½	26	18	12.60

NEW LANGDON MITRE BOX IMPROVED



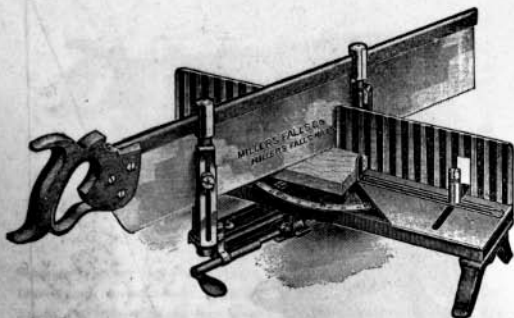
The same as the New Langdon Mitre Box, shown next preceding, except that it is equipped with circular arms, so that it may cut not only at all angles from 45° to 90°, as indicated in the diagram ABC, but also at all angles from 15° to 90°, on 2½-inch stuff, as shown by diagram ABD

No.	Size.	Dimensions of Saw. Inches.	Capacity at Right Angles. Inches.	Capacity at Mitre. Inches.	Weight, Boxed. Pounds.	Weight, Net. Pounds.	Price.
26	1	18x4	6½	4½	25	16	\$11.00
27	1	20x4	6½	4½	26	17	11.60
28	1	22x4	6½	4½	27	17½	12.20
29	1	24x4	6½	4½	28	18	12.80
30	1	26x4	6½	4½	29	19	13.50
31	2	22x4	9½	6½	29	19½	13.50
32	2	24x4	9½	6½	29½	20	14.10
33	2	26x4	9½	6½	30	20½	14.70
34	2½	28x5	9½	6½	34	22	17.00
35	2½	30x5	9½	6½	35	22½	17.60

BOXES WITHOUT SAWS

	1		6½	4½	21	13	\$10.00
	2		9½	6½	22½	14½	11.25
	2½		9½	6½	26½	18½	13.00

THE LANGDON ACME MITRE BOX IMPROVED



Iron and steel castings, the main castings with bronze finish; bright parts nicked. **EXTRA LONG SAW GUIDES TO GIVE STABILITY** when the saw is raised to its highest point.

A simple and effective device **AUTOMATICALLY CATCHES THE SAW GUIDES AND HOLDS THEM SUSPENDED** when they are raised to their highest point and **RELEASES THEM INSTANTLY** when desired.

Notches in the bed plate to determine the positive angles most in use.

By the use of a thumb lever at the front of the box the saw supports may be swung freely and **LOCKED AT EITHER A POSITIVE OR AN INTERMEDIATE ANGLE.**

Guides to support the work against the back or to be used **WHEN ANGLES MORE ACUTE** than 45° are desired. These may be slid out of the way through little gateways in the back when not wanted.

An extension lever with a quick acting adjustment. (Size 1 box does not have an extension lever.)

A length gauge for duplicate lengths.

Steel bottom boards roughened to prevent the work from slipping.

A graduated arc upon the bed and an index plate to tell at what degrees to set the saw for certain desired cuts.

Depth gauge and take-up in case of wear upon the saw.

THE LANGDON ACME MITRE BOX—(Continued)

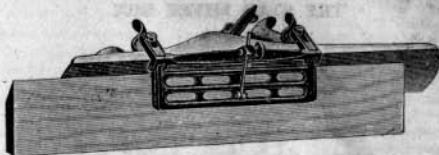
No.	Size.	Dimensions of Saw, Inches.	Capacity at Right Angle, Inches.	Capacity at Mitre, Inches.	Weight, Boxed, Pounds.	Weight, Net, Pounds.	Price.
68	1	22x4	7½	5	34	23	\$13.00
69	1	24x4	7½	5	35	23½	13.70
70	1	26x4	7½	5	36	24	14.40
71	2	22x4	10½	7	34	23	14.40
72	2	24x4	10½	7	35	23½	15.00
73	2	26x4	10½	7	36	24	15.75
74	2½	28x5	10½	7	37	25	18.25
75	2½	30x5	10½	7	38	25½	19.00

BOXES WITHOUT SAWS

	1		7½	5	26	20	\$10.75
	2		10½	7	26	21	12.00
	2½		10½	7	27	22	14.50

All our mitre boxes are provided with saws made for us only by Henry Disston & Sons, Limited.

THE PERFECTION JOINTER GAUGE



Made of iron, black enameled, except some of the smaller parts, which are polished and nickeled.

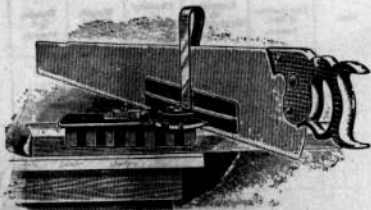
Instantly attachable to iron planes of all sizes by adjustable cams and to wood planes with ordinary wood screws.

May be adjusted for planing square or on a bevel.

Weight, per dozen (with pasteboard boxes), 26 lbs.

Price, per dozen, \$22.00.

Packed 1 in a pasteboard box.

THE STAR MITRE BOX**No. 40**

Iron and steel; bright parts nicked and other parts japanned black.

Especially useful in places where it is impracticable to use a larger box, as for sawing moulding, cornices, etc., at the top of a ladder.

Bed plate with double shelf or rest, permitting the cut to be made at an angle either to the right or to the left.

May be sunk into a bench for stationary use.

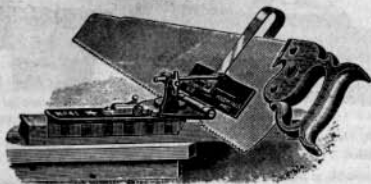
Notches cut into the shifting are determine the angles ordinarily used.

Adapted to either a panel or back saw.

Weight, 2½ lbs.

Price, \$2.50.

Packed 1 in a pasteboard box.

THE STAR MITRE BOX**No. 41**

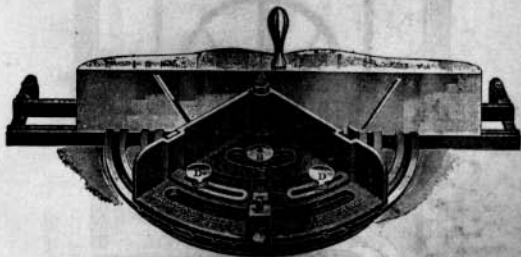
Similar to Mitre Box No. 40, shown next preceding, except that the saw clamp is attached to the rest of the tool by a hinge, which permits the saw to be tilted for cutting a wide range of bevels. This is of particular use in jointing floors.

Weight, 2½ lbs.

Price, \$3.00.

Packed 2 in a pasteboard box.

THE ROGERS' MITRE PLANER



Used extensively for picture framing.

Made entirely of iron, handsomely finished, for planing straight or curved work.

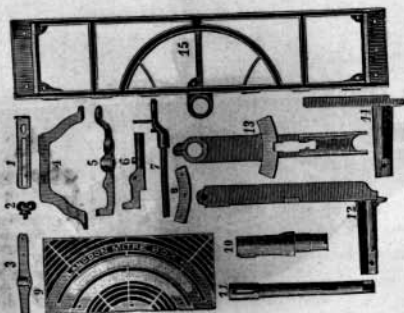
Principal parts: a semi-circular bed plate with a runway at the rear; a plane sliding upon this runway; and a quadrant swinging to right or left upon the bed plate with the point A, shown in illustration, as a pivot.

Quadrant clamped by catch C, shown in illustration, in notches in the bed plate at the angles most in use and at intermediate points by thumb screw B, also shown in illustration. When set in the middle of the bed plate, the side elevations of the quadrant form a perfect mitre for four sided work.

Adjustable arms, clamped with thumb screw DD, shown in illustration, of especial use in enabling one to finish the ends and angles on curved work with exactness. In preparing pieces for circular or oval work, frames, pulleys, emery wheels, circular patterns, etc., it is necessary to plane the ends of the various segments at varying angles. In planing these the point of the quadrant near the plane and the adjustable guides form the rest required for accurate work.

Size.....	2	3½	4
Width of knives.....	2 in.	3½ in.	4 in.
Weight, boxed.....	47 lbs.	73 lbs.	75 lbs.
Weight, net.....	32 lbs.	53 lbs.	55 lbs.
Price.....	\$26.00	\$32.00	\$38.00
Extra plane knives, per pair: 2 in., \$2.60; 3½ in., \$3.20; 4 in., \$3.80.			

PARTS OF LANGDON MITRE BOX AND PRICES



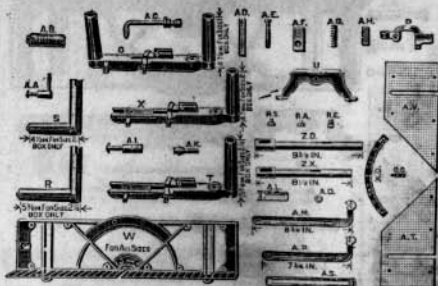
In ordering backs (No. 9) please state whether a right or left hand back is wanted.

All parts of the mitre box are made to interchange, and will be sent by mail; if postage accompanies order, otherwise by express.

Persons ordering parts of boxes will please state the number of the piece wanted and the size of the box for which it is designed.

NAME OF PARTS	Mitre B. Size 1.	Mitre B. Size 2.	Mitre B. Size 2½	Mitre B. Size 3.
1 Stop Gauge.....each	\$0.10	\$0.10	\$0.15	\$0.20
2 Thumb Screw....."	.10	.10	.10	.10
3 Back Lever....."	.15	.15	.15	.30
4 Legs....."	.15	.15	.15	.30
5 Stop Lever....."	.30	..	..	..
6 Stop Lever....."	..	.45	.45	.50
7 Thumb Lever....."	..	.20	.20	.20
8 Gib....."	.25	.25	.25	.50
9 Back....."	.30	.30	.50	.60
10 Back Post....."	.35	.35	.60	.70
11 Saw Guides....."	.55	.55	.90	1.00
12 Swinging Lever....."	.90	..	..	..
13 Swinging Lever....."	..	1.00	1.00	1.50
14 Sliding Post....."	..	.50	.85	1.00
15 Bed....."	1.00	1.00	1.00	2.00
Bottom Board....."	.10	.10	.15	.20
Spiral Spring....."	.05	.05	.05	.05
Screws....."	.05	.05	.05	.05
Lever Pins....."	.05	.05	.05	.05
Set Screw....."	..	.10	.10	..

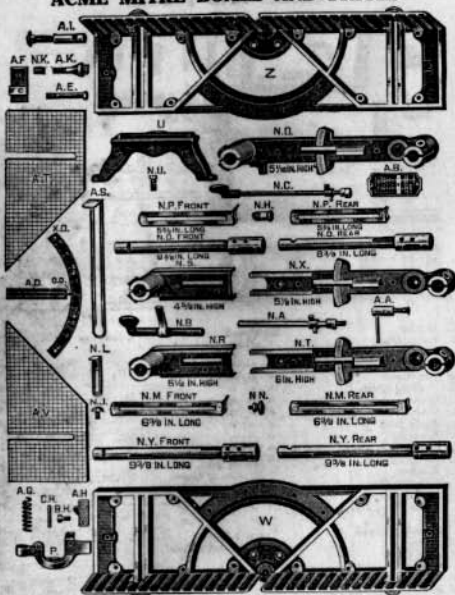
LIST OF PARTS OF LANGDON ACME MITRE BOXES AND PRICES



A. A.	Binder	for sizes 2 and 2½ box	\$0.10
A. B.	Index Plate	" all sizes of boxes	.10
A. C.	Thumb Stop Lever	" " " "	.20
A. D.	Gib	" " " "	.10
A. E.	Gib Screw	" " " "	.05
A. F.	Binding Strap	" " " "	.05
A. G.	Spring	" " " "	.10
A. H.	Stop Lever Strap	" " " "	.05
A. I.	Stock Rest	" " " "	.15
A. K.	King Bolt	" " " "	.10
A. L.	Guide Stop	" " " "	.10
A. M.	Elevator Bar	" size 2½ box	.10
A. O.	Washer	" all sizes of boxes	.05
A. P.	Elevator Bar	" sizes 1 and 2 box	.10
A. S.	Length Gauge	" all sizes of boxes	.15
A. T.	Right Hand Bottom Board	" " " "	.10
A. V.	Left " " "	" " " "	.10
O.	Swinging Lever	" size 1 box	1.25
O. O.	Indicator	" all sizes of boxes	.10
P.	Stop Lever	" " " "	.30
R.	Sliding Front Post	" size 2½ box	.75
R. A.	Guide Stop Screw—Rear	" all sizes of boxes	.05
R. E.	Elevator Stop Screw	" " " "	.05
R. S.	Guide Stop Screw—Front	" sizes 2 and 2½ box	.05
S.	Sliding Front Post	" size 2 box	.50
T.	Swinging Lever	" " 2½ box	1.25
U.	Leg	" all sizes of boxes	.15
W.	Bed and Back	" size 2½ box	1.50
X.	Swinging Lever	" " 2 box	1.10
X. O.	Graduated Arc	" all sizes of boxes	.15
Z. D.	Saw Guide	" size 2½ box	.60
Z. X.	Saw Guide	" sizes 1 and 2 box	.50
Z.	Bed and Back	" " 1 and 2 box	1.50

Parts O, P, R, S, T, U, W, and X, have corresponding letters cast in them, so, if in doubt, reference may be made to the castings.

LIST OF PARTS OF IMPROVED LANGDON ACME MITRE BOXES AND PRICES

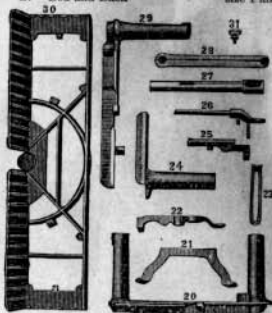


A. A.	Binder
A. B.	Index Plate
A. D.	Gib
A. E.	Gib Screw
A. F.	Binding Strap
A. G.	Spring
A. H.	Stop Lever Strap
A. I.	Stock Rest
A. K.	King Bolt
A. S.	Length Gauge
A. T.	Right Hand Bottom Board
A. V.	Left Hand Bottom Board
B. H.	Stop Lever Strap Screw
C. H.	Stop Lever Pin
N. A.	Stop Lever Rod

for sizes 2 and 2 1/2 box	\$0.10
" all sizes of boxes	.10
" " " "	.15
" " " "	.05
" " " "	.05
" " " "	.10
" " " "	.05
" " " "	.15
" " " "	.10
" " " "	.10
" " " "	.10
" " " "	.03
" " " "	.02
" sizes 2 and 2 1/2 box	.15

**LIST OF PARTS OF IMPROVED LANGDON ACME MITRE BOXES
AND PRICES.—Continued**

N. B. Thumb Lever	for sizes 2 and 2½ box	\$0.15
N. C. Thumb Stop Lever	" size 1 box	.20
N. D. Saw Guide Front and Rear	" sizes 1 and 2 box	.50
N. H. Elevator	" all sizes of boxes	.25
N. J. Guide Stop Screw	" " " "	.05
N. K. King Bolt Stop Screw	" " " "	.03
N. L. Guide Stop	" " " "	.10
N. M. Stop Gauge Front and Rear	" size 2½ box	.10
N. N. Stop Gauge Thumb Screw	" all sizes of boxes	.10
N. O. Swinging Lever	" size 1 box	1.25
N. P. Stop Gauge Front and Rear	" sizes 1 and 2 box	.10
N. R. Sliding Front Post	" size 2½ box	.75
N. S. Sliding Front Post	" " 2 box	.50
N. T. Swinging Lever	" " 2½ box	1.25
N. U. Leg Screw	" all sizes of boxes	.03
N. X. Swinging Lever	" size 2 box	1.10
N. Y. Saw Guide Front and Rear	" " 2½ box	.60
O. O. Indicator	" all sizes of boxes	.05
P. Stop Lever	" " " "	.30
U. Leg	" " " "	.15
W. Bed and Back	" size 2½ box	1.50
X. O. Graduated Arc	" all sizes of boxes	.15
Z. Bed and Back	" size 1 and 2 box	1.50

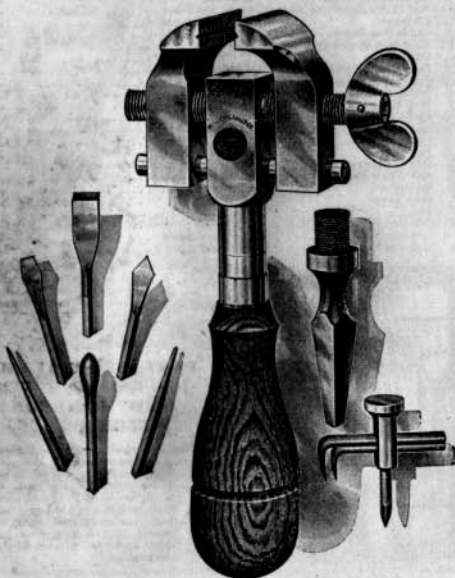


Parts NO, P, NR, NS, NT, U, W, NX and Z have corresponding letters cast in them, so, if in doubt, reference may be made to the castings.

**PARTS OF NEW LANGDON AND IMPROVED
NEW LANGDON
MITRE BOXES**

Persons ordering parts will please state the number of the piece wanted and the size of the box for which it is designed. Or if the letters A, B, C, etc., which may be found on the larger castings, are mentioned, they will enable us to determine just what is wanted without further description.

NAME OF PARTS.	Size 1.	Size 2.	Size 2½.	Size 3.
20 Swinging Lever.....each	\$1.25	...	...	...
21 Legs....."	.15	\$0.15	\$0.15	...
22 Stop Lever....."	.30	...	...	...
23 Stop Gauge....."	.10	.10	.10	...
24 Sliding Post....."	...	.50	.85	...
25 Stop Lever....."	...	.45	.45	...
26 Thumb Lever....."	...	.20	.20	...
27 Guide....."	.55	.55	.90	...
28 Gib....."	.25	.25	.25	...
29 Swinging Lever....."	...	1.25	1.35	...
30 Bed and Back....."	1.45	1.45	1.60	...
31 Thumb Screw....."	.10	.10	.10	...
Circular Arms for Improved Box...."	.30	.30	.45	\$0.50
Thumb Screws for Circular Arms...."	.15	.15	.15	.15

ALFORD HAND VISE**No. 1**

COCOBOLO handle; jaws of **FORGED AND TEMPERED STEEL**; screw of steel; exposed metal surfaces **POLISHED AND NICKED**.

DETACHABLE, HOLLOW handle, with screw cap, containing chisel, screwdriver, countersink, square reamer, brad awl, scratch awl, and washer cutter.

Handle may be screwed into the vise at right angles.

Bit shank to be screwed into the tool either in the position of the handle, as shown in the illustration, or at right angles, permitting the vise to be used in a bit brace.

Length, 6½ inches.

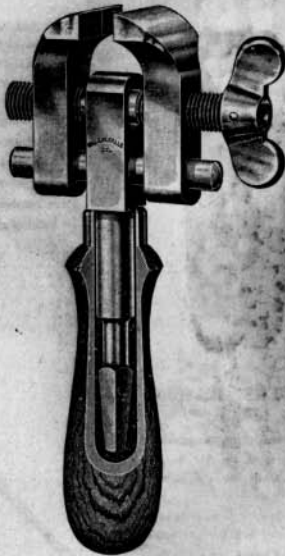
Width of jaws, 1½ inches.

Jaws open, 1½ inches.

Weight, per dozen (with pasteboard boxes), 12 lbs.

Price, per dozen, \$27.50.

Packed 1 in a pasteboard box.

HAND VISE**No. 2**

FORGED STEEL vise, **POLISHED AND NICKELLED**; **COCOBOLO** handle.
Equipped with a bit stock slank for use in a bit brace after removing the **DETACH-
ABLE HANDLE**.

Length, 6½ inches.

Width of jaws, 1½ inches.

Jaws open, 1½ inches.

Diameter of screw, ½ inch.

Weight, per dozen (with pasteboard boxes), 13½ lbs.

Price, per dozen, \$23.00.

Packed 1 in a pasteboard box.

**HAND VISE****No. 3**

Solid steel castings, well tempered,
in black finish with polished jaws.

Jaws opened by a heavy spring and
closed with a thumb nut and
screw bolt.

Length, 5 inches.

Width of jaws, $1\frac{1}{2}$ inches.

Jaws open, $1\frac{1}{2}$ inches.

Weight, per dozen, $13\frac{1}{2}$ lbs.

Price, per dozen, \$12.00.

Packed 1 in a pasteboard box.

**POWERS' WAGON
JACK**

Japanned black and ornamented red.

Side supports of wrought iron; foot
piece, malleable iron; lift bar,
cast iron.

When depressed, the lever is carried
past center so as to be self-locking.

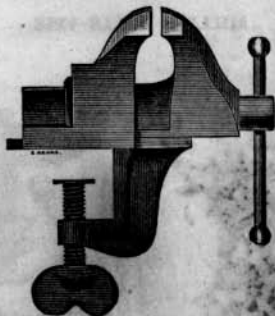
A very quick acting, durable jack.

Nos.....	1	2
Lift	12 to 32 in.	14 to 34 in.
Length of lever...	13 in.	16 in.
Will raise..	1,000 lbs.	1,500 lbs.
Weight, per dozen..	155 lbs.	215 lbs.
Price, per dozen..	\$23.00	\$35.00

Packed 1 dozen in a case.

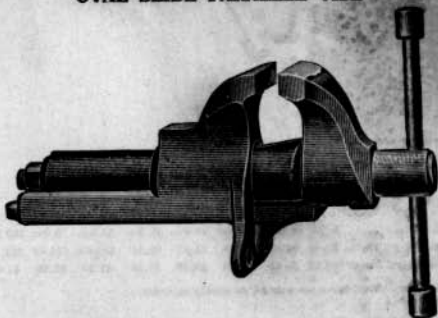


OVAL SLIDE CLAMP VISE



Width of jaw.....	1 1/2 in.	1 3/4 in.
Weight.....	2 1/2 lbs.	3 1/2 lbs.
Price.....	\$0.80	\$0.90

OVAL SLIDE PARALLEL VISE

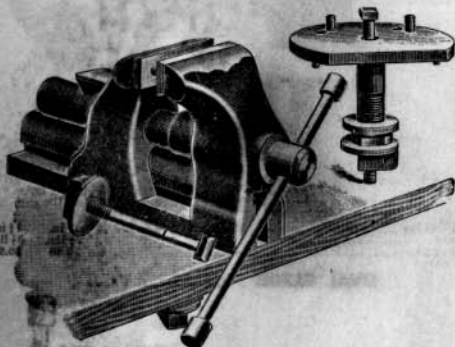


A substantial, inexpensive vise.

A nut in the rear takes up all wear upon the screw and so prevents lost motion.

Width of jaw.....	2 in.	2 1/2 in.	3 in.	3 1/2 in.	4 in.	4 1/2 in.
Weight.....	7 lbs.	11 1/2 lbs.	17 1/2 lbs.	27 1/2 lbs.	35 1/2 lbs.	41 1/2 lbs.
Price.....	\$1.50	\$1.65	\$2.20	\$2.85	\$4.15	\$6.00

MILLERS FALLS VISE



Detachable and interchangeable steel faces.

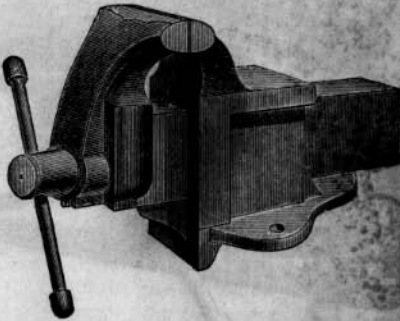
Steel faced anvil on every vise.

Furnished with or without swivel base.

Width of jaw.....	2 in.	2½ in.	3 in.	3½ in.	4 in.	4½ in.	5 in.	6 in.
Weight.....	8 lbs.	18 lbs.	32½ lbs.	42 lbs.	46 lbs.	54 lbs.	76 lbs.	102 lbs.
Price of vise with bolt.	\$3.40	\$4.65	\$6.00	\$7.65	\$8.50	\$10.60	\$14.40	\$21.20
Price of swivel base..	\$0.45	\$0.65	\$0.85	\$0.85	\$1.05	\$1.25	\$1.50	\$1.65

N. B.—When swivel bases are wanted, so specify on order.

MECHANICS' VISE



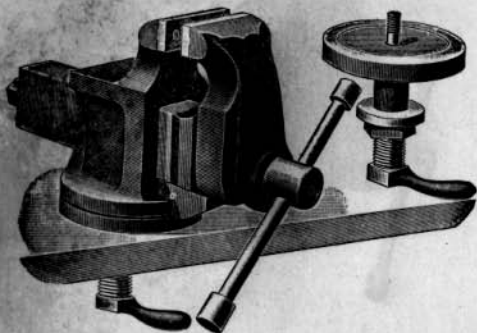
Scientifically designed with **THE GREATEST STRENGTH WHERE THERE IS THE GREATEST STRAIN.**

Detachable steel jaw faces, replaceable if necessary, and steel-faced anvil.

The screw is attached to the vise with a nut which provides for taking up any wear and so obviating any lost motion.

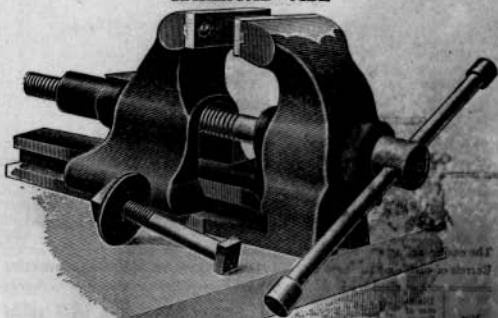
Width of jaw.....	1½ in.	2 in.	2½ in.	3 in.	3½ in.	4 in.	4½ in.	5 in.
Opens.....	2½ in.	3½ in.	3½ in.	4½ in.	4½ in.	5 in.	5 in.	6 in.
Weight.....	3½ lbs.	11 lbs.	22 lbs.	41 lbs.	41½ lbs.	54½ lbs.	55 lbs.	78 lbs.
Price.....	\$2.35	\$3.10	\$4.60	\$7.30	\$8.10	\$10.00	\$11.55	\$13.90

MECHANICS' VISE WITH SWIVEL BASE



Of the same pattern and workmanship as the Mechanics' Vise, described next preceding, except that it is provided with a swivel base.

Width of jaw.....	3 in.	3½ in.	4 in.	4½ in.
Opens.....	4½ in.	4½ in.	7 in.	7 in.
Weight.....	48 lbs.	56 lbs.	62 lbs.	63 lbs.
Price.....	\$8.65	\$10.00	\$11.55	\$13.10

RAILROAD VISE

Especially adapted for railroad and other shops where heavy work is done.

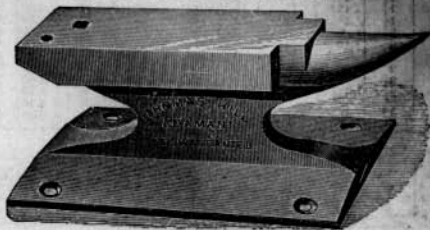
Inserted steel jaws and steel faced anvil.

Width of jaws, 7 inches.

Opens 15 inches.

Weight, 168 lbs.

Price, \$25.50.

HILL'S SOLID STEEL ANVILS

FORGED FROM SOLID STEEL WITH A TEMPER BEST ADAPTED TO AN ANVIL.

Face, sides and horn polished; the base japanned black.

Length of horn two inches in addition to length stated below.

Nos.	1	2	3
Length	5 in.	6 in.	7 in.
Width	1 1/2 in.	2 in.	2 in.
Weight	4 lbs.	5 1/2 lbs.	9 lbs.
Price	\$1.90	\$2.30	\$2.80

JACK SCREWS



The easiest acting and best constructed jack screws on the market.

Barrels of cast iron; screws of **STEEL**; THREADS ON THE SCREWS LATHE CUT.

No.	Diameter of Screw, Inches.	Height of Barrel, Inches.	Minimum Height of Jack, Inches.	Net Rise, Inches.	Maximum Height of Jack, Inches.	Weight, Lbs.	Estimated Lifting Capacity, Tons.	Price With Lever.	Price Without Lever.
1	1½	6	9	4	13	8½	5	\$2.20	\$2.00
2	1½	7	10	6	16	9½	5	2.50	2.30
3	1½	7	10½	5	16	16	8	2.70	2.50
4	1½	9	12½	7	20	20½	8	3.10	2.90
5	1½	11	14½	9	24	22½	8	3.20	3.00
6	1½	9	12½	6	18	22½	12	3.40	3.10
7	1½	10	14½	8	22	25	12	3.60	3.30
8	1½	12	16	10	26	29	12	3.90	3.60
9	1½	14	18½	12	30	32	12	4.30	4.00
10	2	8	12½	5	17	27	15	4.30	3.90
11	2	10	14	7	21	31	15	4.60	4.20
12	2	12	16½	9	25	35	15	5.30	4.90
13	2	16	20½	13	33	41	15	6.00	5.60
14	2½	9½	15	8	23	45½	20	6.40	5.70
15	2½	11	16½	10	27	50	20	7.10	6.40
16	2½	15	20½	14	35	62	20	8.10	7.40
17	2½	19½	25	18	43	75	20	9.50	8.80

CAR JACKS

17½	2	6	10	4	14	19½	15	\$3.90	\$3.50
18	2	8½	12½	5	17	25	15	4.30	3.90
19	2	10½	14½	7	21	29	15	4.60	4.20
20	2	12	16	9	25	35	15	5.30	4.90

N. B.—Jack screws are furnished with levers unless ordered without.

Jack Screw Nos.	1, 2, 3, 4, 5	6, 7, 8, 9	10, 11, 12, 13 17½, 18, 19, 20	14, 15, 16, 17
Diameter of Lever	½ in.	¾ in.	1½ in.	1 in.
Length of Lever	17 in.	18 in.	19 in.	24 in.
Weight of Lever	1½ lbs.	2½ lbs.	2½ lbs.	5½ lbs.
Price of Lever	\$0.20	\$0.30	\$0.40	\$0.70

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SPRINGFIELD
PRINTING AND BINDING
COMPANY.

